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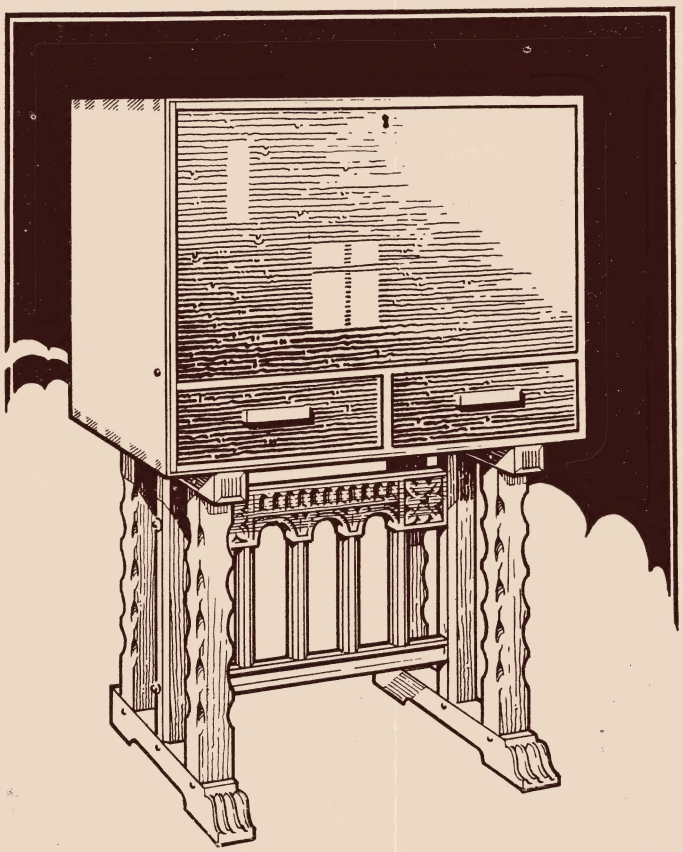

WRITING or SIDEBOARD CABINET

In the Spanish Renaissance Style

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WOODWORKER

VOL. 48 NOVEMBER, 1944 No. 612

WRITING or SIDEBOARD CABINET

Designed in the Spanish Renaissance Style

One of the most delightful and at the same time least known styles of old furniture is the Spanish Renaissance. There is a dignity about it that is most attractive and it lends itself to present-day requirements. The design given here is a simplified version of a 17th-century coffer, and it could be made in the form of a writing cabinet as shown, or, by omitting the stationery nest, it could be made a useful sideboard cabinet. As such its small size makes it specially suitable for the small modern house.

THE sizes given in Fig. 2 are suitable for most requirements but they could be adapted to suit special circumstances or to enable limited materials to be used. Oak is the first choice of wood, but other hardwoods such as beech, birch, chestnut, or other home-grown woods could be substituted.

Cabinet.—This is virtually in the form of a box with rebated-in back and drawer rail at the front. At the corners simple through-dovetails can be used, these forming a decorative feature at sides and top. Prepare the material for ends (A), top (B), and bottom (C), jointing them to obtain the width, and staggering the joints so that they do not line up. Rebates are needed in sides and top for back, whilst the latter fits right over the bottom. Cut the dovetail joints, arranging mitres at the top back corners so that the through rebating does not show. Small decorative rebates are also run around all front outer edges. The corners can be finished off after assembling.

Grooves are needed for the writing top (D) and shelf (G) as shown in Fig. 5; also mortises for the drawer rail (E). Note from the enlarged section, Fig. 3, that a hollow has to be worked to enable the fall to work. The fall is pivoted on round-head screws passed through the ends. It follows then that the hollow must be struck out from the centres of the screw holes. The best plan is to draw out this part of the job in full size and work to this. The simplest way is to work the hollows separately to the approximately correct shape, glue them together, then finish, using a glasspaper rubber.

When assembling, put the writing top and drawer rail (now all one) and the shelf between the ends. Add the upright (F), and glue on top and bottom. Test for squareness and allow to set. Trim the joints and finish the front rebates. Add a centre drawer guide and put kickers beneath the writing top level with the drawer rail. These parts should be cross-grained to avoid splitting in the event of shrinkage.

The stationery nest is made up as a complete unit and is fitted separately. The parts are dovetailed at the corners, and the inner divisions fit in V grooves. If the piece is intended as a sideboard the nest is omitted. The division shown in the shelf space in Fig. 4 can be left out if preferred. If it is to be included the grooves must be cut before the whole cabinet is put together.

If the fall is made of laminated board it should be lipped at the edges, the lipping being tongued on and mitred at the corners. It is then veneered. The bottom edge is rounded, the curve being struck from the centre on which it is pivoted. Use long round-head screws. The fall can be clamped from solid stuff if preferred, but it must be dry to avoid splitting in the event of shrinkage. If this is done the main panel is tenoned into the clamps. A better plan is to frame it together (tenoning the corners) and fit a flush panel tongued in. In this case the panel is fitted dry, the tongueing to be a fairly tight fit. The framing might be 3 ins. wide. No veneering is wanted in this.

The drawers call for no special comment. They are lap-dovetailed at the front and through-dovetailed at the back. Metal slides support the fall when open.

Stand.—Make up the two trestles separately, through-tenoning the legs and wedging them. After cutting the joints, work the shape of bottom feet or rails, and from the front chamfers of the top rails. The outer legs have scallops worked at the edges, a slight gap being allowed between them. The simplest way of working them is to use the file, though if you are a good hand with the chisel you can use this.

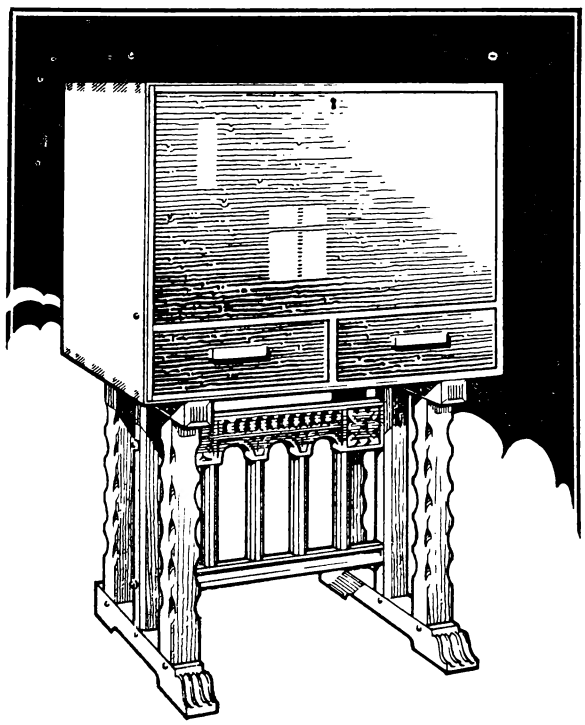


FIG. 1. ATTRACTIVE CABINET IN A FINE STYLE.

This can be fitted either as a writing cabinet, or for general purposes in the living-room. The simple carving can be omitted if preferred. Sizes are: height 3 ft. 11 ins., length 2 ft. 6 ins., depth 15 ins.

The cross-framework, consisting of the top rail (N), bottom rail (O), and uprights (P), is put together with mortise and tenon joints, as in Fig. 6. Work the hollow shapes after cutting the joints. The carving in the top rail can be omitted if preferred, though it adds to the effect. In this case work a simple channeling similar to that of the bottom rail.

The ends of both rails are tenoned to fit into mortises in the centre legs, and they are held there by means of bolts and nuts as in Fig. 6. Note how recesses

(*Continued on page* 174)

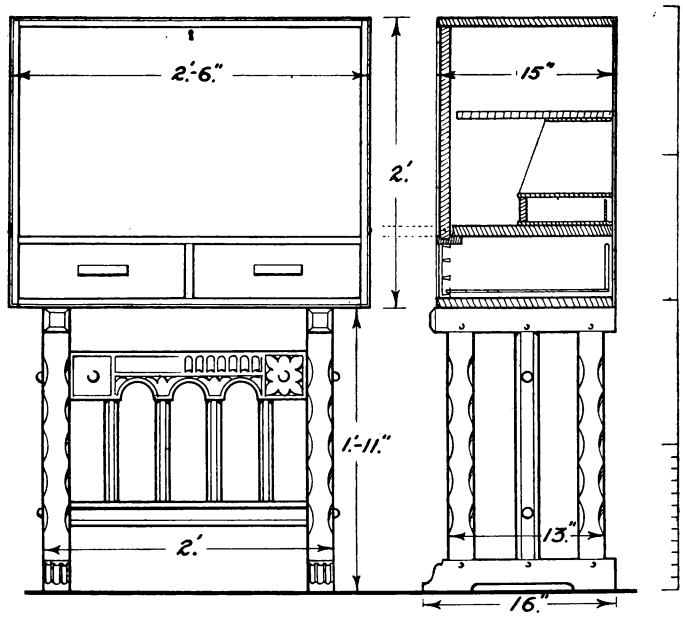


FIG. 2. FRONT AND SIDE ELEVATIONS WITH SIZES.

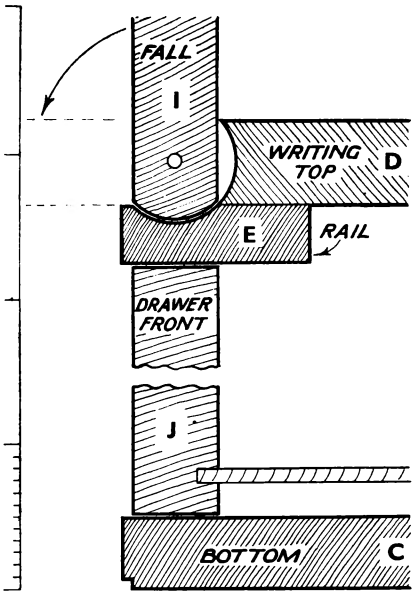


FIG. 3. ENLARGED SECTION.

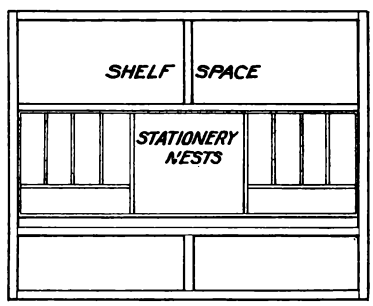


FIG. 4. SUGGESTED STATIONERY NEST

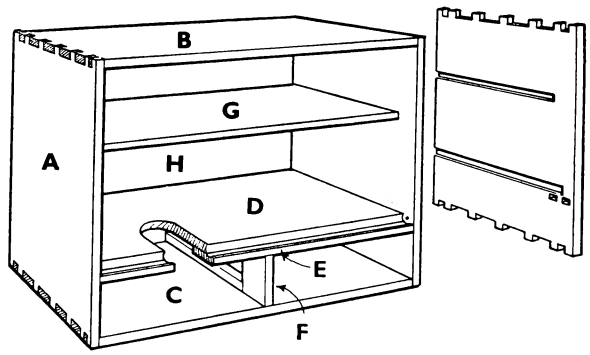


FIG. 5. CONSTRUCTION OF THE CABINET.

CUTTING LIST

			Long ft.	ins.	Wide ins.	Thick ins.
A	2 Ends	.. ..	2	0½	15¼	¾
B	1 Top	.. ..	2	6½	15¼	¾
C	1 Bottom	..	2	6½	15	¾
D	1 Writing top	..	2	5½	14	⅞
E	1 Drawer rail	..	2	6	2¼	⅝
F	1 Upright	..		6	3	⅝
G	1 Shelf	.. ..	2	5½	13½	⅝
H	1 Back	.. ..	2	6	24	*ply* ¼
I	1 Fall	.. ..	2	5	18¼	⅞
			(Laminboard or clamped)			
J	2 Drawer fronts		1	2¼	4¾	⅞
	4 ,, sides		1	2¼	4¾	⅜
	2 ,, backs		1	2¼	4¼	⅜
	2 ,, bottoms		1	1½	14¼	¼

Nest parts and other divisions as required. If fall is clamped allow for fall tenons and clamps.

Stand

K	6 Legs	.. ..	1	11	2 sq. in.
L	2 Rails	.. ..	1	4	2 sq. in.
M	2 Stretchers	..	1	4½	2⅝ 2
N	1 Rail	.. ..	1	11	4¼ ⅞
O	1 Rail	.. ..	1	11	2¼ ⅞
P	4 Uprights	..		11	⅞ sq. in.

Allowance has been made in lengths and widths. Thicknesses are net.

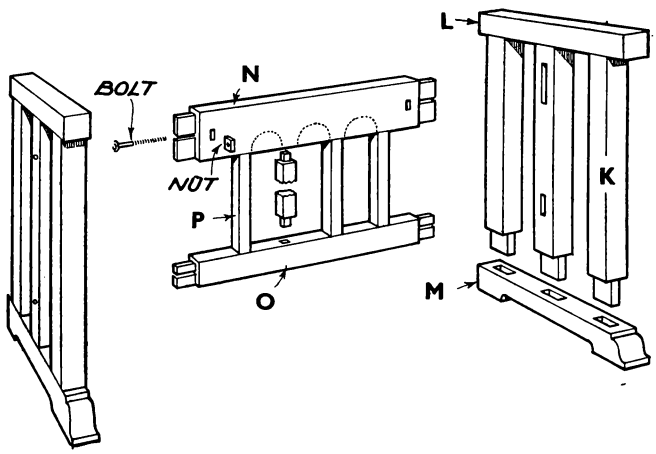


FIG. 6. HOW THE STAND IS PUT TOGETHER.

(*Continued from page* 173)

to hold the bolts are cut in the back faces of the rails. The bolts should preferably have decorative heads. Dowels glued in the top rails (L) fitting dry into corresponding holes in the bottom of the cabinet keep the latter in position. (390)

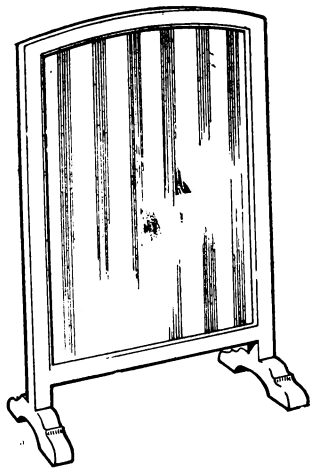


FIG. 1. SMALL FIRESCREEN.

The curved top rail gives a good example of a rebate which has to be worked around a curve.

HOW TO WORK A CURVED REBATE

This is necessarily a rather awkward job because you cannot use the tools normally required for rebating. Obviously neither the rebate nor the fillister plane are suitable, and the plough is equally useless. This article shows how the job can be done without the use of special tools.

A TYPICAL example of a curved rebate is that in the top rail of the firescreen shown in Fig. 1. It might occur also in a door having a curved rail or any other similar framework. In the days when hand work was still done the cabinet maker had a compass rebate plane, which was like a normal rebate plane except that the sole was curved (see Fig. 2). With this the rebate could be worked straightway, but few readers will have such a plane nowadays, and we have therefore to adopt a rather different method.

Cutting the shape.—You can either saw the rail to shape or you can remove the waste wood with tenon saw and chisel as shown in Fig. 3. The saw cuts prevent a split from developing since it cannot run past the next saw cut. Follow with spokeshave or compass plane, making sure that the edge is square. Note that in such cases as the present it is generally an advantage to mark out and saw the tenons first, but to leave cutting the shoulders till afterwards. The outer curve is best left until the rebating is completed. It leaves more wood to grip in the vice and avoids weakening it.

Marking.—To mark the depth of the rebate the cutting gauge must be used, but it is necessary to use a fence with a curved surface which will bed into the curve. A simple plan is to plane the underside of the gauge fence and use this, reversing it on the stem (see Fig. 4). The width can be marked with the ordinary gauge.

Cutting.—With a dovetail saw make a series of cuts across the grain down to a trifle short of the gauge lines as in Fig. 5. Once again the purpose is to prevent a split from developing. With a wide chisel held at an angle ease away the waste so that a chamfer is formed, the width of which is slightly less than the gauge lines. This again is shown in Fig. 5. Take the chisel in from each end so that the grain does not prove awkward.

Now, using a quick gouge, remove the inner part of the rebate as in Fig. 6. If you make a preliminary shallow cut short of the gauge line, follow with the chisel, and then, repeat the process, you can gradually make the rebate deeper and deeper. When nearly down to the finished depth take a flat gouge and cut in horizontally along the gauge line (see Fig. 7). If you use a wide chisel vertically along the edge gauge line the remaining waste in the corner will come away. Test to see that the rebate is square and trim where necessary with the gouge and chisel. Finish off by making a glasspaper rubber to fit the curve, and rub down any inequalities with this. (356)

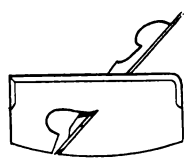


FIG. 2

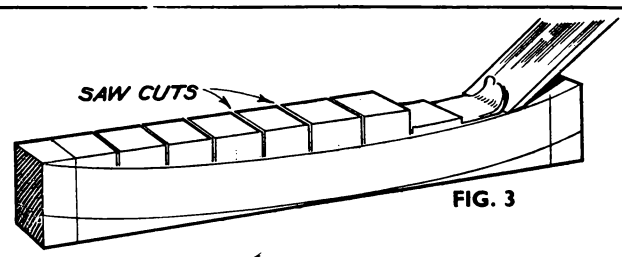


FIG. 3

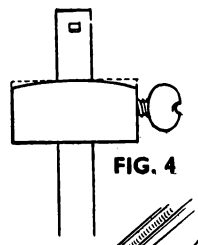


FIG. 4

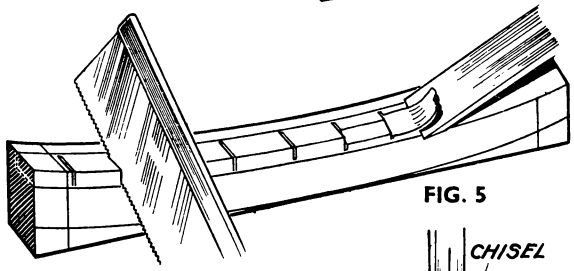


FIG. 5

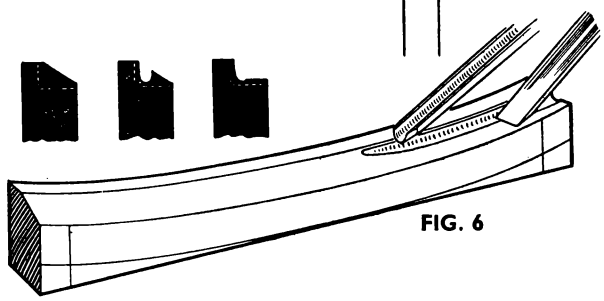


FIG. 6

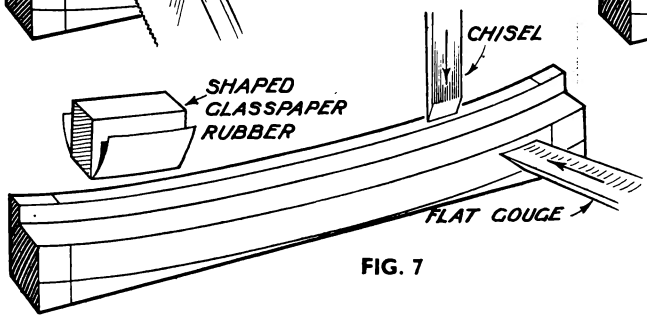


FIG. 7

STAGES IN THE PROCESS AND TOOLS USED.

Fig. 2. Small compass rebate plane used for planing curved rebates.
Fig. 3. How shape can be worked.
Fig. 4. Gauge with curved face to fence.
Fig. 5. Working preliminary chamfer.
Fig. 6. Cuts made with gouge and chisel.
Fig. 7. Finishing off the rebate.

A SIMPLE 8-in. CIRCULAR SAW BENCH

A number of readers have written to us asking particulars of the construction of a small circular saw bench. The bench described is in answer to these requests. The bench mounts an 8-in. saw and timber up to 2⅛ ins. can be cut.

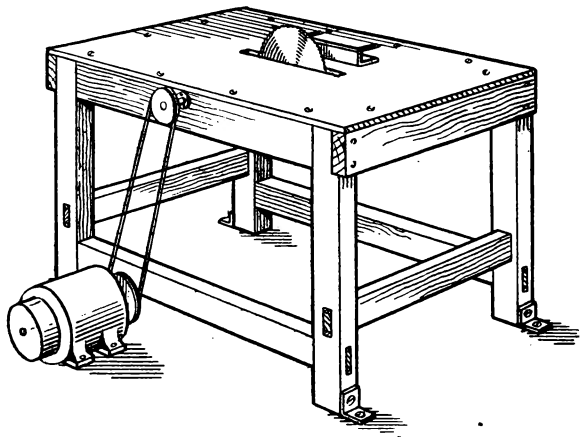


FIG. 1. GENERAL VIEW OF THE SAW BENCH.

Main sizes are : Height 2 ft. 3 ins., Length 3 ft., Width 2 ft. The saw should not be used for wood thicker than 2⅛ ins.

A SMALL circular saw can save much laborious work, and the construction of this saw bench is well within the capabilities of the worker of average skill. Small electric motors suitable for driving a circular saw are not difficult to obtain. The peripheral speed of a circular saw should be as high as possible, the generally accepted speed being 9000 ft. per minute. Soft woods especially require a high speed. In order to obtain the requisite speed without loss of power the rating of a motor for an 8 in. diameter saw should be ½ h.p. A ⅓ h.p. motor, running at 1750 revs. per minute, however, would be suitable, providing there is no loss of power by a step-up in speed of the saw.

The motors are usually provided with pulleys and it should not be difficult to arrive at the size of driven pulley to give a speed of about 3500 revs per minute which will be about right for an 8-in. saw. The motor will bear a plate giving the working data which will include the r.p.m. It will be noted from Fig. 3 that the bearing for one end of the saw spindle is arranged as close to the saw as possible. Thus the length of the spindle is reduced to a minimum and the possibility of " whip " in the spindle is avoided.

Bench Construction.—The legs, rails, and central bearer, *a*, Fig. 2, can all be made from 3 in. by 1½ in. prepared deal, but it would be an advantage if the rail *b* and bearer *a* were made from a hardwood, as these members have to carry the bearings for the saw. With the exception of the top rails *c* and the bearer *a* all parts are mortised and tenoned together.

The rails *c* are lapped over the legs and secured by screws. It is important that the bearer *a* should be parallel with the rail *b* and firmly remain in this position, therefore it is advisable to notch it into the rails *c*. When setting out the rails, a line should be squared across the bearer *a* and rail *b* and the centre of each bearing carefully marked as it is essential that the saw, when in position, should be square with the bench.

The top, which should be ½ in. laminated wood, can be cut to size and slotted after the frame is completed and the saw fitted. Prior to assembling the frame, circular recesses should be made for the ball bearings. These should be a tight fit and be flush with the outside surfaces of the rail *b* and bearer *a*. On referring to Figs. 3 and 4 it will be noticed that the spindle at the right hand end is reduced in diameter to the root diameter of the thread and that it is still further reduced where it passes through the bearing. This further reduction

(*Continued on page* 177)

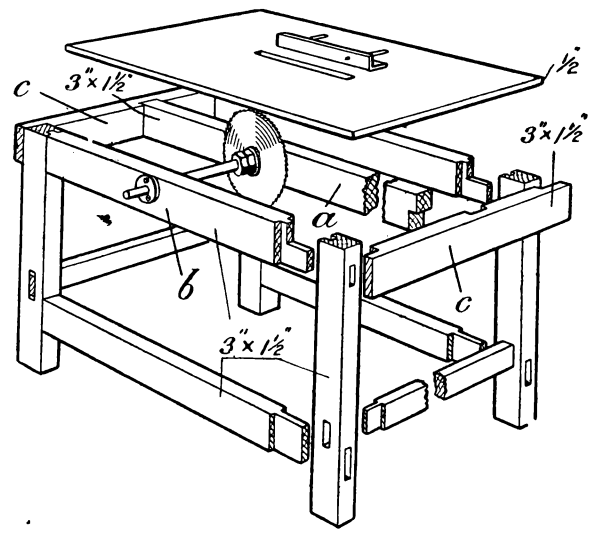
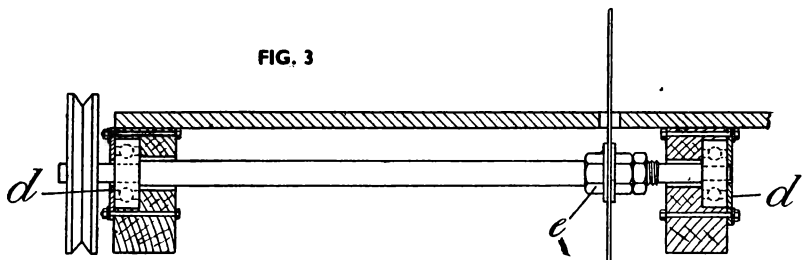


FIG. 2. CONSTRUCTION OF THE BENCH.

Parts *a* and *b* should be of hardwood preferably.

FIG. 3



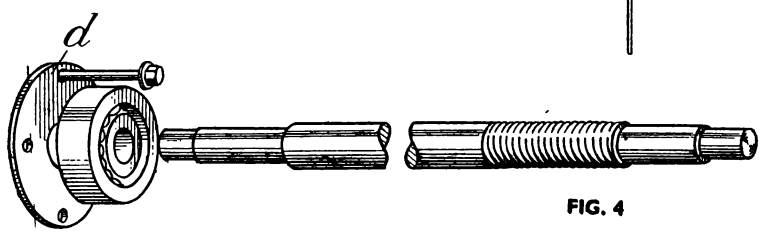


FIG. 4

FIG. 3. METHOD OF MOUNTING THE SAW ON THE BENCH.
FIG. 4. DETAIL OF SAW SPINDLE, BEARING AND RETAINING PLATE.

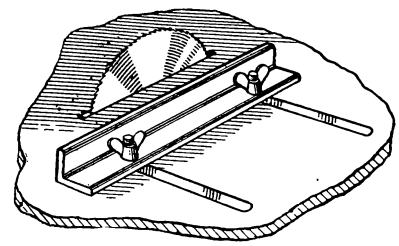


FIG. 5. SIMPLE FENCE MADE FROM ANGLE IRON

CHIPS FROM THE CHISEL

WASTE

"——before the hand can move and create seemliness, and order, and beauty, the mind must desire these things."

SQUARE pegs in round holes not only don't fit; they get badly bruised when they are forced in. There is rubbing and friction, and when they are men and women, there is heartache. And yet, in peace-time, how many there were of these square pegs in the round holes! The men in the wrong job; men with the souls of craftsmen sitting at clerk's desks; men with the land in their blood in workshop or factory, sighing for green fields. The job was the thing then, any job, the getting it, holding it—yes, the everlasting struggle to hold it against all comers, against the moods and whimsies of an employer, against sickness and accident, until in the soul of the man grew a worse sickness, the sense of frustration caused by gifts and talents going to waste.

* * *

The world is terribly, appallingly wasteful of talent. Looking back over the past history of our own race, we can see it again and again. The Reformation, when the monasteries were closed and some of the finest craftsmen of their time were driven out destitute, no longer able to glorify God with their handiwork and very much at the mercy of men. The Industrial Revolution, when the world honoured machines and forgot the men whom the machines had replaced; when many of the old crafts died out and with them centuries of traditional skill; when, in the general upheaval of that swift break with the past, old standards were lowered and with it the standard of public taste. To-day we are trying painfully to struggle back. Thanks to some of the Victorians who stood forth like the prophets of old, men like Morris and Ruskin denouncing the evils that they saw around them, men grew conscious of their loss and various movements, fostered by various individuals, sprang up to save and restore old crafts, while there still lurked in odd corners of quiet towns and villages the genuine craftsman—blacksmith, basket-maker, cabinet-maker, the little men—still carrying on.

* * *

Then came the war, with waste on a larger scale than anything we had hitherto dreamed of: the awful waste of men and material, the battering down of noble buildings, the destruction of art treasures, all the lovely work of men's hands falling into crashing ruin wherever the trail of war passed. Our soldiers have seen it, in France and Belgium and Italy; we have seen it in England, where homes which represent all the sweetness and sanity of civilised living can be blasted in a moment by a bomb. If only the mind of man had been equal to the skill of the hands which it governs! For before the hand can move and create seemliness, and order, and beauty, the mind must desire these things, must desire them so urgently that a man will patiently train his hands to their job and satisfy himself in so doing. It is only when the mind of the world is full of greed, and selfishness, and hate that the hands produce destruction.

* * *

The hands of the craftsmen, with the aid of the great machines of modern power, can—and will—build the world up again. But, each time we destroy, something has gone out of it, something has been lost that can never be replaced. And until we, the men who are part of the mind of the world, are ready to work for justice and right living, until the mind of the world is sane again and faith is restored among men, so will our hands be forced to destruction, whether we will or no, and there will be no peace in our days.

CIRCULAR SAW BENCH

(*Continued from page* 176)

is necessary in order to provide a shoulder to take the side thrust against the bearing.

In order to avoid a corresponding reduction at the other end of the spindle, a slightly smaller bearing can be fitted adjacent to the saw. On the completion of the recesses a central hole in each should be bored, each hole being slightly larger than the full diameter of the spindle.

Saw Spindle.—If the worker has a metal-turning lathe, the making of the spindle should present little difficulty. If, however, these facilities are not available the work could be done at a local garage or by a small engineering firm. Mild steel rod of a diameter which will just pass through the hole in the saw is suitable. No dimensions are given for the spindle as the worker will be able to decide these for himself when the frame is completed and the bearings are temporarily positioned.

The screw thread is best cut on the lathe. A Whitworth thread is satisfactory but a finer thread is preferable. Some difficulty, however, may be experienced in obtaining corresponding nuts. In order to enhance the clamping effect of the nuts, two washers are provided one on each side of the saw. As shown in Figs. 3 and 4 the bearings are held in position by plates *d*. These have a central clearance hole for the spindle and are fixed in position by bolts. Screws are not satisfactory owing to their possible displacement by the side thrust of the spindle.

Assembly.—The bearing in the bearer *a* can be positioned and the retaining plate fixed. The spindle is then passed through the hole in the rail *b* and nut *e* screwed on. The adjacent washer is then applied and the spindle taken through the hole in the saw, which is finally secured by the other washer and nuts. The spindle is now fitted into the central bearing and the other bearing inserted, the latter being secured by its retaining plate. The bench top can now be prepared and the position for the saw slot determined and the slot cut. The slots for the adjustment of the fence can also be made at the same time. Finally, the top is cut to size and screwed in place, the screws being well countersunk.

Fence.—The construction of the fence has necessarily to be simple, as the usual form with its screw adjustment could not easily be made by the average worker. The fence shown in Fig. 5 comprises a 15 in. length of 2 in. angle iron. In one of the flanges $\frac{7}{16}$ in. holes are drilled to take $\frac{3}{8}$ in. diameter bolts, the holes coinciding with the slots already prepared in the top. The fence is clamped in adjusted positions by wing nuts, a washer being inserted under each nut. **(394)**

YOUR WALKING STICK

(*Continued from page* 178)

have the crutch form (C). On the other hand, if the root is merely a rounded mass, or the wood is unsound, we may have to be contented with the plain knob (D).

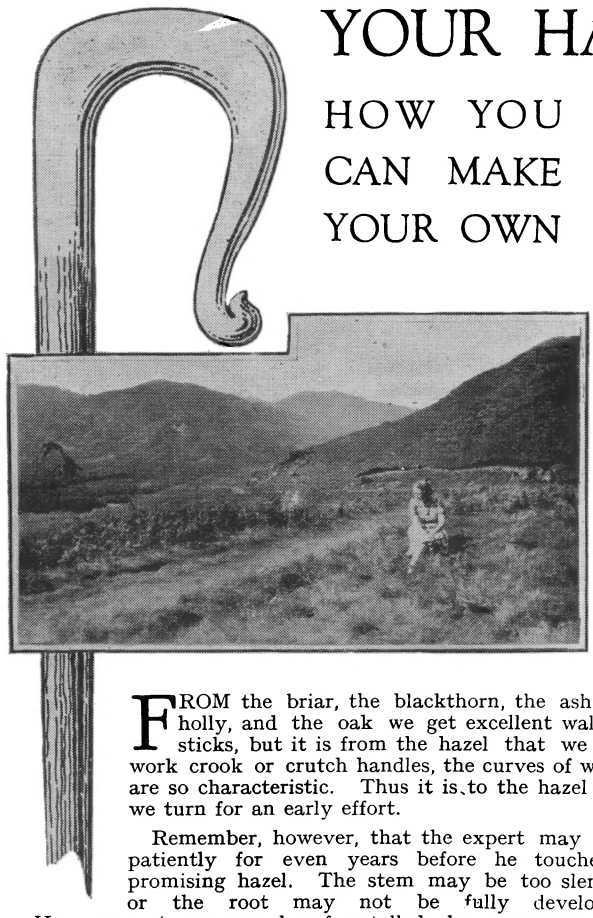
On the handle block the pattern is set out in pencil (Fig. 2) and the outline roughly trimmed. Holes are often bored as at *x* to facilitate the interior cutting. The country worker rarely uses any tool except his knife, but occasionally he will resort to a cabinet rasp or file, finishing with glasspaper. Chisels and gouges are of course handy on occasions. It may be added that, in the matter of design, the worker is guided largely by his eye. The direction of grain is an important factor, and thicknesses of certain parts may have to be modified according to this. It is usually advisable, too, to finish off the shaping of a terminal knob such as *z* (Fig. 3) before working on the main body of the handle.

At the point where the bare handle meets the bark, use the glasspaper in such a way that the bark does not appear to be hiding a joint. The handle is natural, and this should be obvious.

In the final finish avoid any sticky varnish. Clean the handle thoroughly and polish to a natural colour. When fitting the ferrule dip the end of the stick into creosote or hot beeswax. **(392)**

YOUR HAZEL WALKING STICK

HOW YOU CAN MAKE YOUR OWN



FROM the briar, the blackthorn, the ash, the holly, and the oak we get excellent walking sticks, but it is from the hazel that we can work crook or crutch handles, the curves of which are so characteristic. Thus it is to the hazel that we turn for an early effort.

Remember, however, that the expert may wait patiently for even years before he touches a promising hazel. The stem may be too slender, or the root may not be fully developed. He may of course be forestalled by someone too eager; but he takes the risk, knowing instinctively that it is folly to expend labour on an immature sapling. The novice is unlikely to follow his example; but in time, after a few disappointments, he comes to learn that the veteran is wise.

When to Cut.—This varies but the rule is not to cut whilst the sap is running. This begins in spring and continues till the late autumn when the leaves drop. The oak and ash are late to leaf, and the oak holds its foliage long after other trees are bare. Thus, speaking generally, it is wise to postpone cutting till towards the end of the year. December, January, and February are safe months.

Taking the case of a hazel, the root may be cut without fatal injury to the tree. Do not kill the whole tree for the sake of one stick. Clear away the earth, examine the root carefully and (with a compass saw) cut off a block which will be sufficient to give a good handle. The type of handle is decided later. If large, as in Fig. 1, it will yield a crook; if smaller, it will give us one of the forms indicated in Fig. 4. The point is not to injure the tree itself, as later it may have other fine stems to offer.

A sound, straight stem is obviously essential. It must, too, spring direct from the root. Any slight irregularity in the length may be disregarded, as this can usually be corrected, but it is clear that there must be no unsightly bend near the root. The grain here is too strong to permit of the curve being straightened.

Bark.—Safely cut and brought home, the stem is left to season. The making of a walking stick is not a job to be hurried. If cut in December the expert will perhaps wait six months at least before he begins to model it; eight months is common for hazel. Firstly there is the bark to consider. Were the stick cut during spring or summer whilst the sap was in flow the bark would peel, and hazel sticks are left with the bark on. Even when cut late in the year sap lingers, and there is a risk of the bark peeling unless it is well oiled to keep it moderately soft. Cut off all twigs, neatly trimming the stumps, and rub boiled linseed oil well into the stick. Do this with the *hands* (not with a cloth) and rub until the oil has practically dried out. It is wise at first to repeat this oiling every few weeks, although later on once a month will do. Meanwhile store the stick in a dry place, but not in a warm room; avoid both dampness and heat. An occasional rub with furniture polish (containing beeswax) does no harm.

Oak and ash sticks are usually barked. In this case the bark is peeled off at once after cutting. An old plan, still adopted by many, was then to bury the stick in a horse-manure heap over winter and, after cleaning, hang it up in a fairly moist outhouse till seasoned for working.

The Stem.—During seasoning the handle is left in the rough (Fig. 1), no trimming, apart from cutting away root tendrils, being attempted at this stage. Twig stumps, however, should be carefully levelled with glasspaper, leaving a rounded spot which will break through the bark. Should the stem be a little off the straight, after seasoning, coax it gently and bind it firmly to a length of stout wood which is curved the opposite way. Leave it thus for some weeks except for unbinding it periodically for examination. Now and again a slight change of position may be necessary. Later, when it appears to be satisfactory, oil it and bind it firmly to a stout straight pole, or a plank, taking special care to protect the bark. The whole operation is more or less one of patient coaxing, and except in special cases heat is unnecessary.

Handle.—The shape of this depends on the size and form of solid wood at the root. If large, as in Fig. 1, we can aim at the characteristic shepherd's crook. If shorter in length, the flattened crook (A, Fig. 4) is ideal for the ordinary walking stick. Sometimes the root will permit only of the straight handle (B), or, if there is a projection at both sides, we can

(*Continued on page* 177)

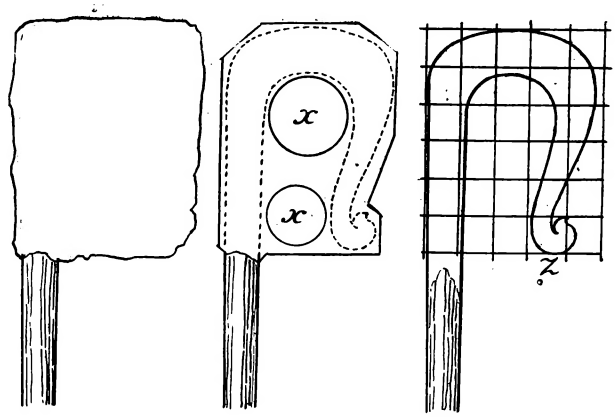


FIG. 1. SOLID BLOCK BEFORE SHAPING. **FIG. 2. PRELIMINARY HOLES.** **FIG. 3. THE SHAPE SET OUT IN SQUARES.**

These show stages in shaping the handle.

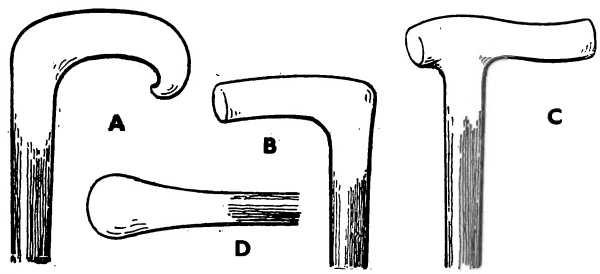


FIG. 4. VARIOUS HANDLES CUT ACCORDING TO THE MASS OF WOOD AVAILABLE FOR SHAPING.

WHEN YOU CANNOT
OPEN A DRAWER

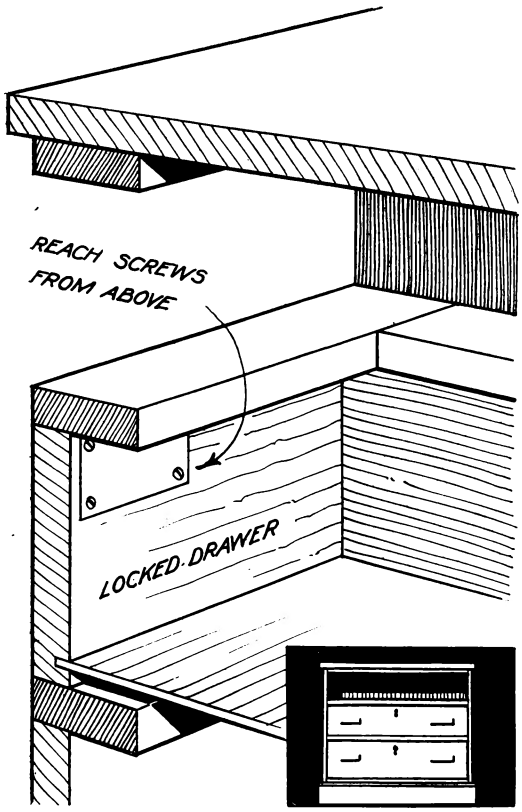


FIG. 1. REACHING THE LOCK FROM ABOVE

This is the simplest method for lower drawers. It is not practicable when the top drawer is at fault. A torch is handy for locating screws

SO far as furniture is concerned it is clear that the remedies adopted must do as little damage as possible. It is simple enough to insert a crowbar and give it a wrench, but the last state of the work will be worse than the first. Some damage in some circumstances may be inevitable, but it must be kept to a minimum.

Drawers.—The commonest cause of not being able to open a drawer is that it has been locked and the key either fails to turn, or it has been entirely lost. Since locks are screwed on from inside the simplest plan when practicable is to undo the screws from inside.

If it is not a top drawer remove the drawer above and see if you can locate the screws, using a long screwdriver, as in Fig. 1. If there is no dustboard this is generally possible. If this can be done the drawer will usually pull out leaving lock to fall inside. Another way is to take off the back and see if you can get at it that way. Again the drawer above will have to be withdrawn.

Should it be the top drawer things are more difficult. In some cases it may be possible to remove the top, taking off the back first, but generally this cannot be done as the screw heads are invariably covered by the drawer itself. One plan (which can also be applied to other drawers if the foregoing methods fail) is to attempt to punch off the lock by placing a punch against the lock pin and striking it. The screws are generally small and will usually give. The lock of course is spoilt and a new one will have to be fitted. It is a help if you take off the back and ask an assistant to push the drawer forward from the back whilst punching.

Reverting again to lower drawers, if a dustboard prevents access from above, one plan is to cut a recess opposite the bolt from above and endeavour to punch down the bolt as in Fig. 2. Cheap locks often succumb to this treatment. The recess will have to be plugged afterwards and a hole cut to suit the new lock. If you examine the other locks you will be able to see where the bolt occurs on the lock.

If the drawers are long it is sometimes possible to bend up the rail above the drawer as shown in Fig. 3. Two pieces of wood are screwed together to form an L shape and the whole screwed above the rail. By fixing a cramp as shown the rail can sometimes be bent upwards sufficiently for the bolt to clear. It is a rather drastic procedure and must not be overdone or the rail may snap. Short drawers cannot be dealt with in this way.

Should all the above methods fail and a key to turn the lock be unobtainable,

These troubles are sometimes encountered in old furniture and may be the result of casting in the wood, a faulty lock, or a missing key. Here we deal with some of the ways of tackling the problem.

the only way is to cut a notch in the front of the rail opposite the bolt to enable the latter to clear as in Fig. 4. Afterwards a neat dovetailed patch can be let in and a fresh recess cut to suit the new bolt.

One other method that can sometimes be adopted is to remove the back and endeavour to take out the drawer bottom. This is sometimes handy when it is the top drawer which is at fault and it is impossible to remove the top. The bottom invariably fits in grooves in the

(*Continued on page* 182)

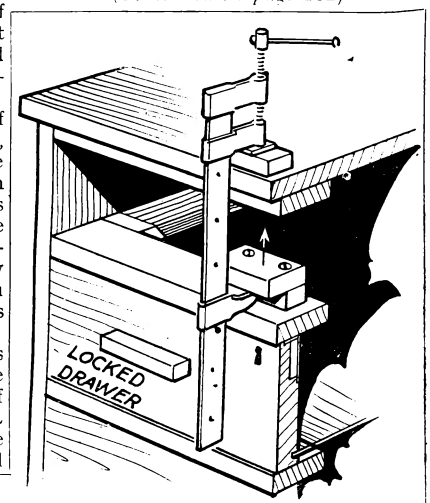


FIG. 3. BENDING RAIL UPWARDS

When the drawer is long this will sometimes enable the bolt to clear

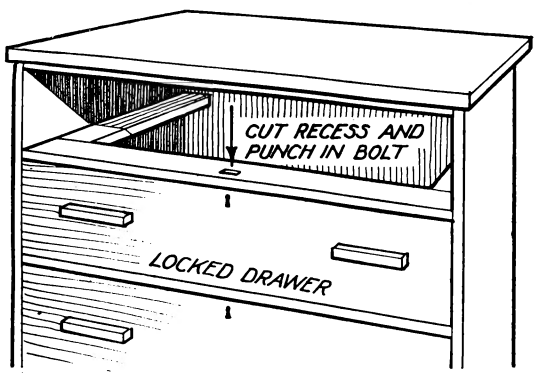


FIG. 2 (*left*)
FORCING THE BOLT FROM ABOVE

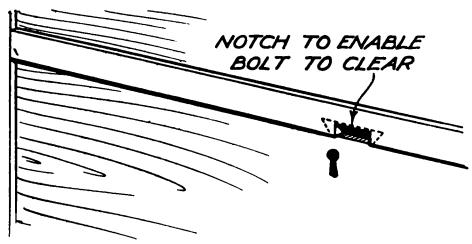


FIG. 4 (*right*)
THIS ENABLES BOLT TO PULL FORWARDS

The notch is filled in afterwards

THE DRESSING

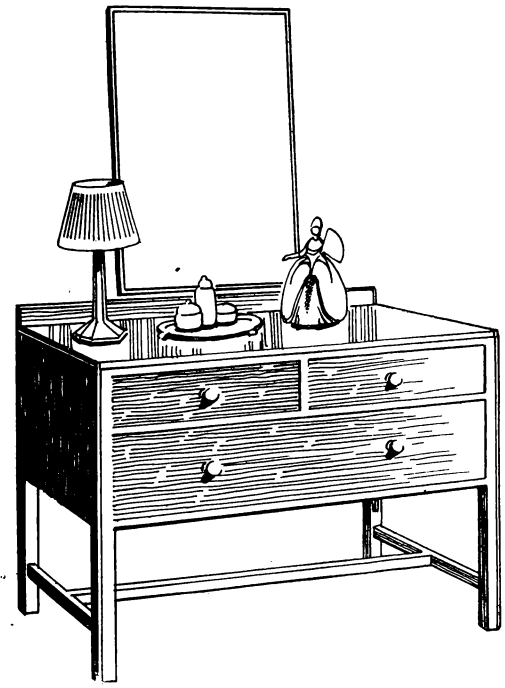


FIG. 1. SIMPLE DESIGN TAKING LITTLE WOOD.
This is a good example of how a simple design can be effective if well proportioned. Main sizes are 3 ft. 4 ins. long, 19 ins. deep, 2 ft. 6 ins. high.

FEW women would consider a home completely furnished without a dressing table. Essentially it is an entirely feminine article of furniture. So this must be the first consideration in designing and making it. Some strange and elaborate designs were evolved during the period between the last and present war, a few having merit but many being just bizarre. The design we offer here, Fig. 1, is an ordinary, simple, straightforward piece of furniture, easy to make, of pleasing proportions, and suitable for a small size bedroom.

The rectangular mirror can be positioned upright or lengthwise. The alternative landscape form is shown in the small inset sketch, Fig. 2. It will be noted that there is 6 inches difference in the height of the top of the mirror from the floor, so if the table is intended for a fairly tall woman the design, Fig. 1, is most suitable.

Clean, straight-grained oak is suggested in the sketch. Possibly one could obtain enough for just the exteriors of the various bedroom pieces, using some cheaper and more easily obtained wood for the interior and backs. If, owing to shortage and control, only mixed kinds of timber are available the only finish is a painted or cellulosed one. This can look quite nice if the colour scheme is carefully considered.

Construction.—Most of the joints are shown in Fig. 3. If the stretcher rails (E, F) are omitted, the legs (A) should finish 1⅛ inches square. With stretchers, 1¾ ins. square is the minimum. The ends are shown solid wood, ¾ in. or ⅝ in. thick. The drawer rails, top rails, drawer runners and division are ⅝ in. thick. The extension of the drawer division (N), Fig. 3, to a little over halfway back is well worth the extra trouble as it not only serves as a guide to the drawers but also keeps the top true and level, preventing the drawers from binding. The kicker (R), shown broken off, can also be secured to it enabling the drawers to be fitted before fixing the top. The usual hanger (V) is shown at the rear, but with the extended division much of the weight is taken off it.

A solid bottom can be put in if desired. The idea of putting in two bottom rails and screwing a dustboard to the underside enables the top to be easily fixed by screwing up through the top rails before adding the dustboard.

Commence by planing the legs (A) true and square and cross cutting to size. The ends (G) have vertical grain and are tongued or dowelled to the legs, the outside faces being flush with the faces of the legs. Tongues should have a wide and narrow shoulder, see inset, Fig. 3. The double shoulder makes it much easier to cramp up. If dowels are used keep the same setting of the gauge for ends and legs when striking the drilling points. If a solid bottom is use, the ends will need rebating along the bottom edge to take it.

These articles suggest suitable simple schemes for fitting up the small houses, pre-fabricated or otherwise, that we may expect after the war. Previous articles in the series appeared in "Woodworker" for September and October, 1944.

Strike off and cut the mortises for the rails (K and L) and dovetail for the top rails (H and J). Before assembly the drawer division (M) must be tenoned to the top and mid-drawer rail, Fig. 3. The extension (N) is dowelled to the division (M), being the same width as the drawers.

Assembling.—Assembly is as follows: Tongue or dowel and glue the ends and stretcher to the legs. Tenon and glue the drawer division to the rail (K). Tenon and glue the drawer rails, back bottom rail, and stretcher to the legs. Add the top rails (H and J) by dovetailing them down to legs and ends. Add the drawer runners (O and P). The middle ones are grooved for dustboards if these are being fitted. These runners are stub-tenoned to the front rails and slot-screwed to the ends and back leg to allow the ends to shrink at will. Hence a gap must be left where notched around the back leg, Fig. 3.

Give additional support to the centre drawer runner by adding the

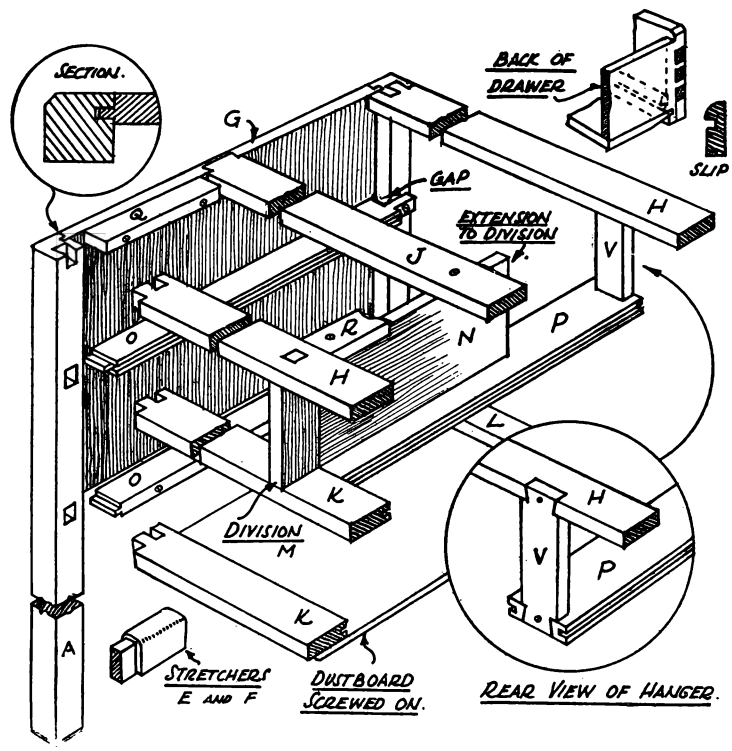


FIG. 3. CUT-AWAY VIEW SHOWING THE VARIOUS JOINTS.

TABLE

hanger (V). Fit and screw the drawer division extension (N), Fig. 3.

Drawers.—The drawers can now be fitted before adding the top (W) and the bottom dustboard (Y). Drawers should be dovetailed, the sides being lap-dovetailed to the fronts and through-dovetailed to the drawer backs. Allow about $\frac{1}{8}$ in. on the width of fronts and sides for fitting. Slips are grooved (See Fig. 3) and glued and pinned to the drawer sides to receive the bottoms.

Solid bottoms $\frac{5}{16}$ in. thick will need fielding to enter the grooved slips and front. The bottoms are slotted and screwed to the drawer backs at the rear. Drawer guides about 8 ins. long at each side are required. The long bottom drawer needs a centre muntin (T), see half-sectional front view, Fig. 2. Kickers (Q and R) are finally added. Add the top by screwing up through the top rails. The edge is set in a bare $\frac{1}{16}$ in front and ends.

Mirror and Supports.—Obtain the mirror with a $\frac{1}{2}$ in. bevelled and polished edge all round. Make a frame about $\frac{1}{8}$ in. larger than the glass all round and plane it down to suit the mirror. Add a thin back to the frame and fix the glass to it with clips, Fig. 4. Make a frame of the supports (B), Fig. 4, and screw it to the back of the dressing table. Add the ledge (U) by dowelling it down to the top and screwing through the mirror supports from the rear. Hinge the mirror to the supports by using special fittings made for the purpose, and a stay to keep the mirror in any desired position, Fig. 4.

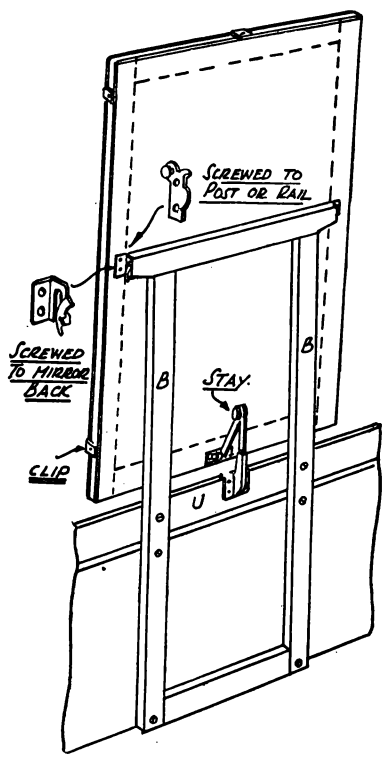


FIG. 4. VIEW OF MIRROR FROM REAR.

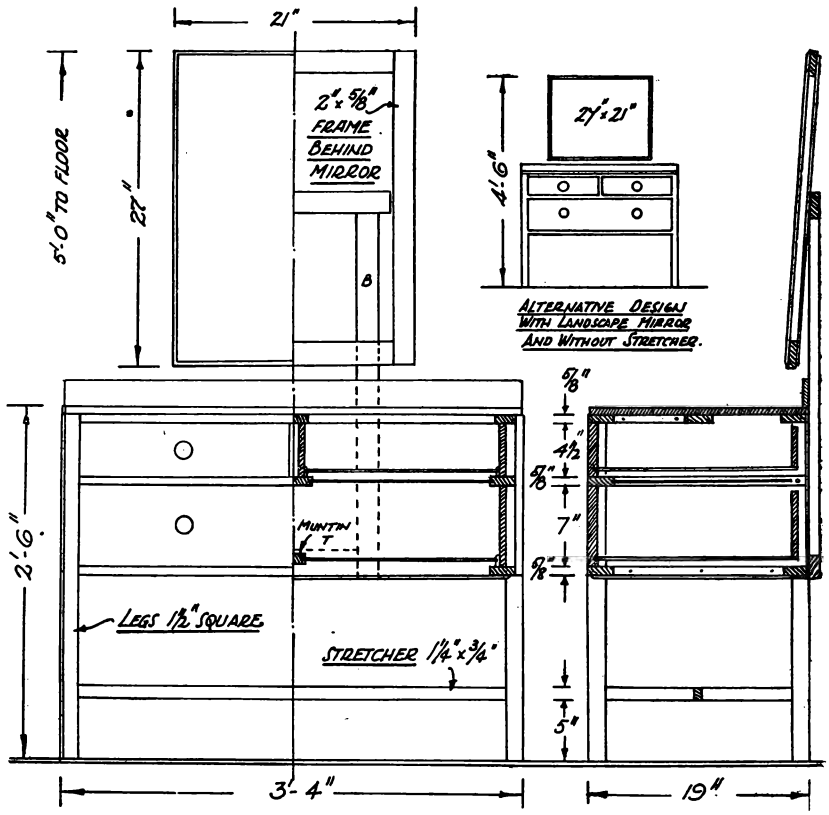


FIG. 2. FRONT ELEVATION, END SECTION, AND ALTERNATIVE MIRROR ARRANGEMENT.

Drawer pulls are left to the makers discretion, but oak knobs are suggested. These are pinned through the fronts and wedged inside. One top drawer should lock and could be fitted with a shallow sliding tray divided into compartments for jewellery. The carcase back can be very thin plywood screwed on. (386)

CUTTING LIST

		Long ft. ins.	Wide ins.	Thick ins.
A	4 Legs	2 5½	1½	1½
B	2 Mirror Posts	2 9	2	
C	1 Ditto Rail	1 5	2	
D	Ditto Rail	1 0	2	
	2 Drawer Fronts	1 6 3/16	4⅝	
	1 Ditto	3 1	7⅛	
E	2 Stretchers	1 5½	1¼	
F	1 Ditto	3 3¼	1¼	
G	2 Ends	1 1⅜	16¾	
H	2 Top Rails	3 2¾	2¼	
J	1 Ditto	3 3¾	2¼	
K	2 Drawer Rails	3 2¾	2¼	
L	1 Back Rail	3 2¾	2¼	
M	1 Drawer Division	5¾	2¼	
N	1 Division Extension	9½	4½	
O	2 Drawer Runners	1 4¾	1¾	
	2 Ditto	1 2½	1¾	
P	1 Ditto	1 5⅛	2¼	
Q	2 Drawer Kickers	6	1⅜	
R	1 Ditto	6	1¾	
S	4 Drawer Guides	8	⅞	
T	1 Drawer Muntin	1 5	2¼	
	2 For Mirror Frame	2 3¾	2	
	2 Ditto	1 7¼	2	
U	1 Ledge	3 3⅞	2½	
	1 Top	3 3⅞	19	
V	1 Hanger	5¾	1¾	
	4 Drawer Sides	1 5	4⅝	
	2 Ditto	1 5	7⅛	
	2 Drawer Backs	1 6 3/16	3⅝	
	1 Ditto	3 1	6⅛	
	4 Drawer Bottoms	1 5½	17	
W	1 Carcase Back	3 3	13⅜	
X	1 Carcase Bottom	3 2½	17¾	
Y	1 Mirror Back	2 3	21	
Z	2 Dustboards	1 5¼	14¾	

		Thick ins.
A	4 Legs	1½
B	2 Mirror Posts	7/8
C	1 Ditto Rail	7/8
D	Ditto Rail	7/8
	2 Drawer Fronts	¾
	1 Ditto	¾
E	2 Stretchers	¾
F	1 Ditto	¾
G	2 Ends	⅝
H	2 Top Rails	⅝
J	1 Ditto	⅝
K	2 Drawer Rails	⅝
L	1 Back Rail	⅝
M	1 Drawer Division	⅝
N	1 Division Extension	⅝
O	2 Drawer Runners	⅝
	2 Ditto	⅝
P	1 Ditto	⅝
Q	2 Drawer Kickers	⅝
R	1 Ditto	⅝
S	4 Drawer Guides	⅝
T	1 Drawer Muntin	⅝
	2 For Mirror Frame	⅝
	2 Ditto	⅝
U	1 Ledge	⅝
	1 Top	½
V	1 Hanger	½
	4 Drawer Sides	7/16
	2 Ditto	7/16
	2 Drawer Backs	7/16
	1 Ditto	7/16
	4 Drawer Bottoms	¼
W	1 Carcase Back	3/16
X	1 Carcase Bottom	3/16
Y	1 Mirror Back	3/16
Z	2 Dustboards	3/16

All Sizes are net, excepting for the Mirror Frame, Drawer Fronts and Sides on which $\frac{1}{8}$ in. is allowed for paring. W, X, Y and Z in plywood if possible.

Keep both hands behind the cutting edge when chiselling. It is a safe precaution against cutting yourself.

* * *

When repairing an old drawer, the bottom of which has become cracked or split, and which cannot be removed for proper gluing, glue a strip of fine canvas to the underside. This strengthens it and prevents small items from falling through.

* * *

When clenching a nail place a heavy piece of metal beneath the head so that the latter is not started out when the point is turned and knocked down.

NEW SQUARE PUZZLE

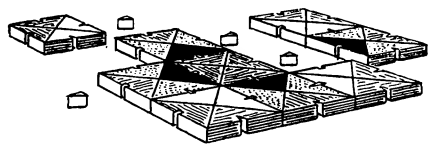


FIG. 1. A WOODWORK PUZZLE NOT ALWAYS EASY TO SOLVE. IT IS INTERESTING TO MAKE. ODD SCRAPS CAN BE USED.

The puzzle is not so simple as might appear. The obvious aim is to secure a balanced geometrical pattern, and this in itself may not be easy if more than four colours have been used. A secondary aim is to secure that the twelve upright wedges all face upwards and the twelve horizontal ones all point in one direction. Without the wedges scores of different patterns might be arranged; with the wedges it is another story. To the American "Home Craftsman" we are indebted for the idea.

THIS American puzzle may be new to most readers. It consists of nine squares of, say, 3 ins. by 3 ins., each divided by two diagonal lines into four triangles which are stained or painted different colours. Each triangle is notched as shown in the enlarged diagram (Fig. 2), the adjacent notches (when the puzzle is assembled) engaging wedge-shaped pieces about an inch long and ½ in. over base. The squares may be any size, but 3 ins. is suggested as convenient for handling. The completed large square is thus 9 ins. by 9 ins.

On a 9½ ins. by 9½ ins. board of ⅜ in. hardwood or ¼ in. ply carefully set out the diagram as shown in Fig. 2, each square being 3 ins. Mark carefully and make sure that the lines are truly horizontal and vertical. Rule in the diagonal lines and also mark the positions of the wedge-shaped pieces. It is worth while to do this setting out carefully, as otherwise the wedges will not fit neatly.

Before cutting out the nine squares, decide on your colours and mark each piece (1, 2, 3, etc.) accordingly. If you trust to chance later you may land in difficulties. Cut along the straight lines, releasing the squares; then, with a fine fretsaw, cut the notches, noting that there are two of each shape in each square. Glasspaper the edges and, after giving each piece a coat of shellac, draw in the diagonal lines with Indian ink. The shellac prevents the ink from spreading.

Five, six, or more colours may be used. A more business-like woodwork puzzle is produced by staining. In this case rub off the shellac coat. The ink lines will remain faintly as a guide. If to be painted, use enamel colours and take care not to run over the lines.

The twenty-four wedges can be cut economically from stripwood ½ in. wide and of the same thickness as the squares.

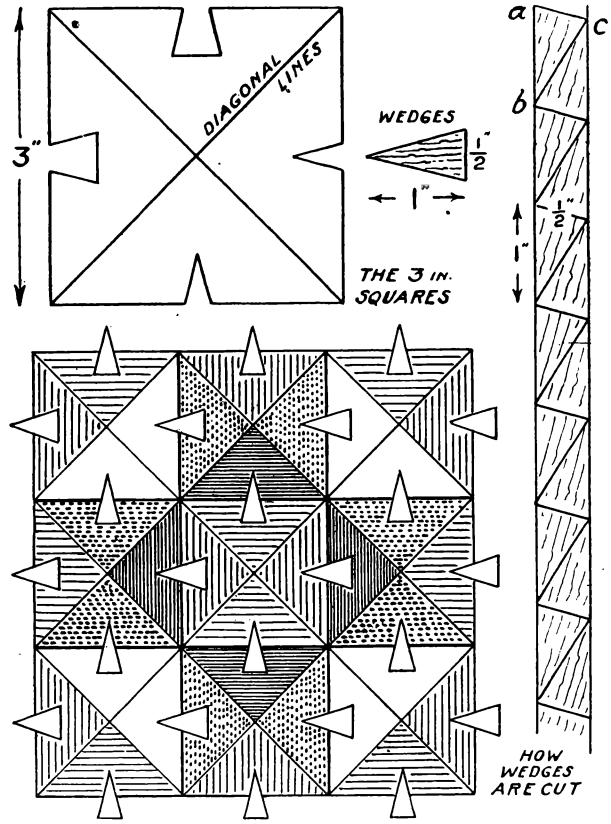


FIG. 2. WORKING DETAILS AND FINISHED PUZZLE.
An enlarged plan of the 3 in. squares is given also details showing how the wedges are cut.

The method of setting out is shown. Mark one edge out in inches as *a b*. From point *b* mark *c* (one inch) on the other edge and mark along in inches as before. By drawing lines across from *a* to *c* and *b* to *c* you have the wedges ready for cutting. Any later trimming to fit may be done with glasspaper. In Fig. 2 (principal diagram) all twelve *outside* wedges are shown complete. They may be left so, as if cut short flush with the edge the smaller V-shaped pieces might easily be lost. (375)

CABINET TROLLEY

(*Continued from page* 183)

length they may equal the full width of top (H) or may be reduced to 16 ins. as indicated (Fig. 5). Hinge with stout back-flaps, bedded in. Brackets (K) may be about 8 ins. by 2¾ ins., hinged to table end with a 2½ in. butt. Provide a stop for each bracket.

Cupboard door could be of stout ply, faced, with edges lapped with solid strip. An inside shelf can rest loose on fillets. Drawer fronts look well if projecting about ⅛ in. with a slight bevel.

Should suitable rubber-tyred castors (for easy travel) not be available, the legs might be cut an inch or so longer at present and fitted with small brass castors. The rubber-tyred type could replace them later. (349)

OPENING A DRAWER

(*Continued on page* 179)

front and sides and is nailed or screwed to the back. Undo the screw or prise down the bottom and try to slide out the latter. You can then probably get at the screws holding the lock.

If the lock is not the cause of the trouble it is due either to the wood having swollen or to something in the drawer catching against the rail above. In the former case remove the back, and, holding a piece of wood against the back first at one side then the other, tap with a hammer. This will generally free the drawer. If the back is a fixture, remove the other drawers if possible and endeavour to lever the drawer out at the back. Alternatively, if the whole piece is placed in a dry atmosphere for a while it will generally shrink the timber, enabling the drawer to be pulled out.

Should something be catching inside, insert the blade of a thin knife (such as a table knife) along the top edge. (385)

HOUSING THE CYCLE

(*Continued from page* 185)

wide by 1 in. thick, with the front corners shaped to give easy entry to the front wheel of the cycle, are fitted above the bottom rail of the end frame, and two stays 2 ft. 3 ins. long by 2 ins. wide by 1 in. thick are arranged between the guide boards and the 2 in. square rail above. The stays are lapped into the guide boards and are notched ¼ in. into the square rails above. (378)

CABINET TROLLEY for Lounge or Garden

CUTTING LIST		Long ft. ins.	Wide ins.	Thick ins.
(A)	4 Legs	2 1½	1½	1½
(B)	2 Ends	1 9	15	⅝
(C)	2 Top rails	2 3	2½	⅝
(D)	Bottom	2 3	16	¾ or ⅝
(E)	Partition	1 9	16	⅝
(F)	2 Drawer rails	2 3	2½	⅝
(G)	Back (*ply*)	2 4	21	¼
(H)	Top	2 5½	17½	⅝
(J)	2 Flaps	1 4	8¼	⅝
(K)	2 Brackets	8	2¾	⅝
	Door	1 7½	12¼	⅝
	1 Drawer front	1 0¼	4½	¾
	1 do.	1 0¼	6½	¾
	1 do.	1 0¼	7	¾

Drawer sides and back, $\frac{7}{16}$ in.; bottoms, plywood. Add drawer runners, guides and kickers. Lengths allow for fitting, but thicknesses are net. Note that length of legs should be adjusted to the type of castor used.

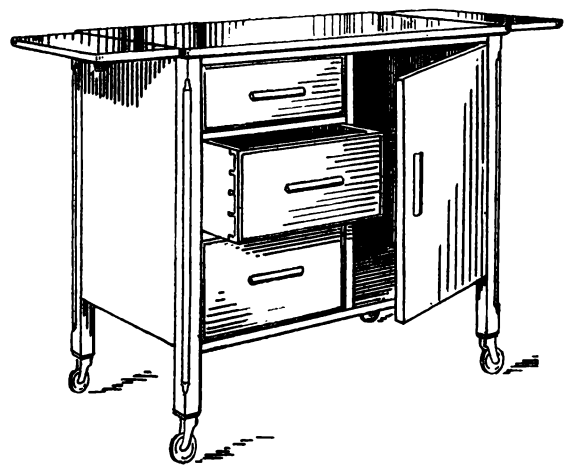


FIG. 1. TROLLEY WITH MANY USES.

Apart from the living-room or garden this would prove invaluable as a nursery item. Top is 2 ft. 5½ ins. long, extending to 3 ft. 10 ins. Width is 1 ft. 5½ ins.

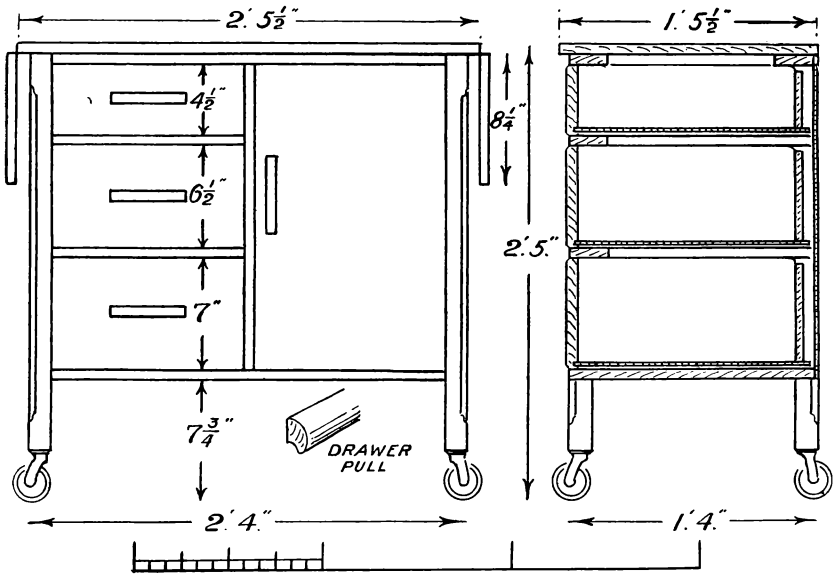


FIG. 2. FRONT ELEVATION WITH SIZES.

FIG. 3. SIDE SECTION.

PROVIDED with a small cupboard and three useful drawers, such a piece is exceedingly useful for either indoor or garden purposes. If carried out in oak the whole structure can be kept comparatively light.

Ends.—Legs (A) could be left square if kept a shade under 1½ ins., but are lightened in appearance by a wide chamfer as indicated. This is done after cramping. Alternatively, the corners could be well rounded over. They are grooved for housings on ends (B) and rebated for the bottom (D); also dovetail-notched for top rails (C) and tenoned for drawer rails (F). The ends (B) may be jointed to width and are cut with ⅜ in. tongues to enter legs.

If you have a baby in the house you will find this invaluable for bathing and changing. The drawers hold napkins, etc., and the cupboard provides space for soap, powder, towel, and so on.

Assembly (see Fig. 4).—Prepare parts (C, D, E and F). The bottom (D) is extended at sides to lie in the rebates cut in ends and is screwed from below. It is also tenoned to legs and grooved to take partition (E). This partition, jointed to width, is tenoned to top rails (C) which are dovetailed to legs. Drawer rails (F) are tenoned to legs at left and housed to partition. Add guides and runners as shown. Kickers will be required for top drawer. The plywood (or boarded, if preferred) back (G) is let into rebates cut in the rear legs, the rebates being stopped at underside of bottom.

Top.—The top (H), jointed to width, overhangs ¾ in. all round. It may have slightly rounded corners and is screwed through top rails and kickers. The flaps shown (J) are not essential for a trolley, but for emergency purposes are a useful addition. They need not exceed 8 ins. or 9 ins. in width, whilst in

(*Continued on page* 182)

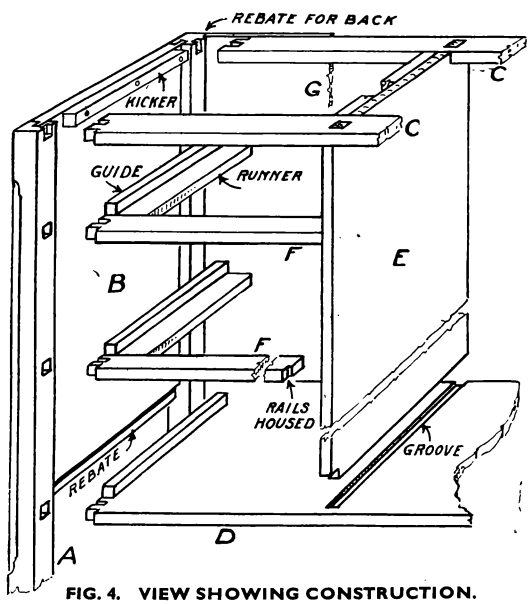


FIG. 4. VIEW SHOWING CONSTRUCTION.

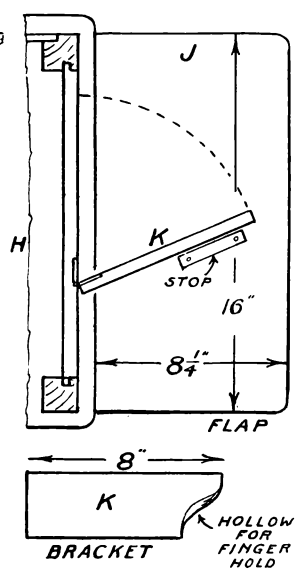


FIG. 5. DETAILS OF FLAP.

CHILD'S PLAY PEN

— AN UNUSUAL DESIGN —

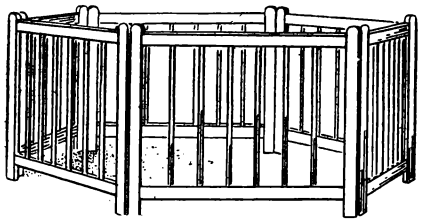


FIG. 1. HEXAGONAL DESIGN.

The sides are hinged together in pairs for convenience in folding flat. Each side is 30 ins. long by 24 ins. high.

IN the making of a play-pen the worker is not restricted to any given sizes. These he may decide for himself. Thus, if the pen is made up of independent sides (as in the present case), the lengths of these may be increased or diminished; or, alternatively, the number of sides may be adjusted as required. Here the sides (E) are 30 ins. long, and six of these will give a diameter of 4 ft. 3 ins. between the frames, or 5 ft. from corner to corner. If eight sides are used the shorter diameter will be 6 ft. and the larger one about 6 ft. 6 ins. In a simpler way the six sides (E) shown may be increased to 3 ft. or more in length, thus obtaining a greater diameter with less labour.

At (A) is shown a plan of the pen, the diagram at (B) indicating how two complete sides are hinged together for folding. When setting up on the lawn or in the nursery the three hinged sections will be connected and held with stout hooks and eyes (see D and F).

Sides.—In making these, the top and bottom rails are through-tenoned to the stiles (G). To make sure that all the dowel rods are in alignment, cramp the twelve rails together (as at C), mark carefully for the centre-bit and bore through the double thickness. Mark each *pair* of rails when separating them. The boring may be right through, but it looks better if the rails are so arranged that the bit enters the top rail only about 1 in. or 1¼ ins. so that the top edge is left flat. It may pass right through the bottom rail which stands 2 ins. up from the ground.

A softwood such as larch may be used, but birch or ash is better if readily available. Soften all harsh corners and finish by varnishing.

CUTTING LIST

	Long ft.	ins.	Wide ins.	Thick ins.
12 Stiles	2	0	1¾	⅞
6 Top rails ..	2	6	1½	⅞
6 Bottom rails ..	2	6	2	⅞
36 Dowel rods ..	1	9	½ dia.	

Three pairs of 2 in. butt hinges and three pairs of side hooks with eyes are the only metal parts required. (377)

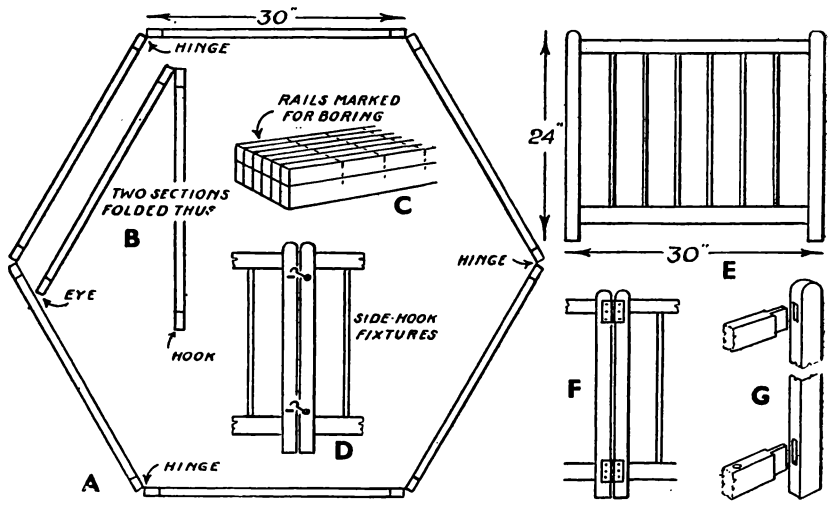


FIG. 2. PLAN, ELEVATION OF ONE SIDE, AND CONSTRUCTION.

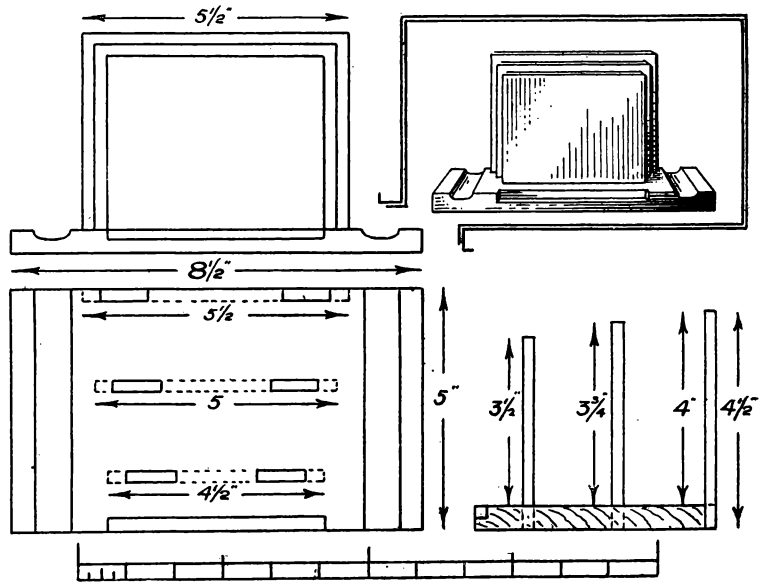
SIMPLE LETTER RACK

THIS little item is made from oddments. For the stand a piece of ½ in. stuff 8½ ins. by 5 ins. is required. The three racks can be cut from a 13 in. length of ¼ in. fretwood a full 5½ ins. wide. (Do not use plywood unless the edges can be satisfactorily veneered).

The stand is squared to size, the back edge being slotted for the rear rack, whilst through mortises are cut for tenons on the two other racks. Gouge hollows as shown for fountain pen or pencil and neatly work a ¼ in. step in front as indicated.

Racks should be fitted grain upright. Cut two tenons on each and glue in. The back rack may be screwed. In fitting these racks it is wise to pack the intermediate spaces with blocks of wood in order to keep all three in correct alignment whilst gluing. If in walnut, oak, mahogany, or satin walnut the piece may be waxed after staining as required.

If you decide to french polish the rack you will find it an advantage to polish before gluing in the racks. Otherwise it will be impossible to reach the inner faces. (359)



DAINTY LETTER RACK THAT YOU CAN MAKE FROM SCRAPS.

Scale elevation, plan and end sectional views are given for working purposes. Size is 8½ ins. by 5 ins.

Sale and Exchange advertisements are unavoidably omitted owing to lack of space. They will be inserted in the December issue.

HOUSING THE CYCLE OR PRAM

From the numerous inquiries made to obtain ordinary people's views on post-war housing, one demand which has been almost general is that suitable accommodation should be provided for the cycle or pram to obviate the necessity of leaving them in either the entrance hall or scullery. Any woodworker living under this inconvenience may soon put matters right by constructing a small shed as described in this article.

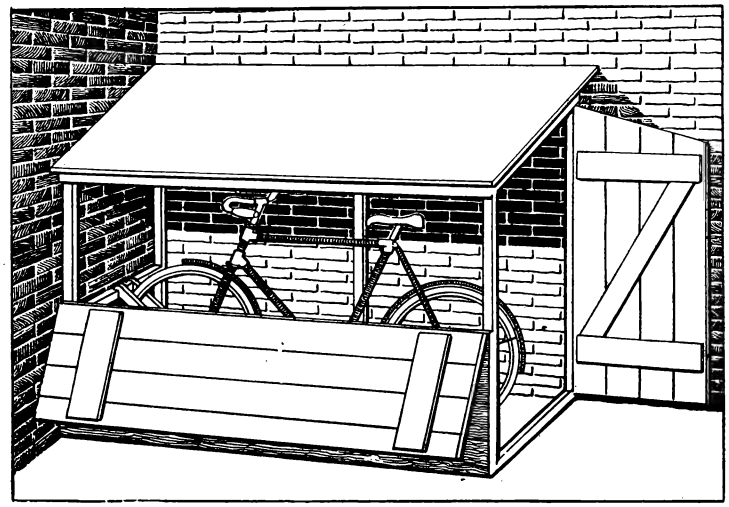
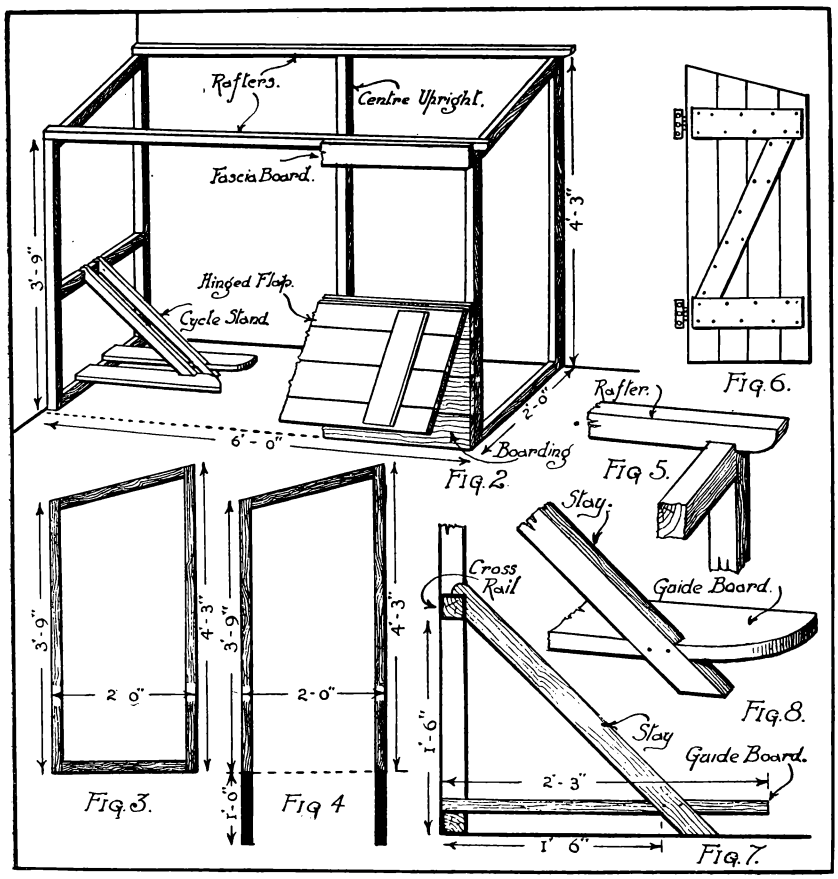


FIG. 1. INVALUABLE ADDITION TO EVERY SMALL HOUSE

The advantage of this is that it takes little timber since the whole thing is small in size. Dimensions can be taken as a general guide but they can be adapted to suit the timber available, and to suit special requirements.

VARIOUS types of sheds have been introduced for this purpose, but the difficulty with most is that they have been large enough for a person to enter when the cycle is placed in it, and are consequently expensive. Here, however, is shown a new type of erection made in such a way that a cycle or pram may be wheeled in while the person remains outside.

For economical construction the shed should be placed against a wall which makes it unnecessary to enclose the back. If a corner where two walls meet is available this will be even more convenient as it will only be necessary to provide for the front, end, and a roof. As will be seen from Fig. 1, the shed is made with a door at the end for the entry of the cycle (or pram), and the machine is controlled and placed in the rest by opening a flap which is provided at the top of the side. For a single cycle the shed should be 6 ft. long by 4 ft. 3 ins. high by 2 ft. wide. For two cycles it must be proportionately wider, for a tandem somewhat longer, while for a pram only a small building is necessary according to the type in use.



CONSTRUCTION DETAILS, JOINTS, AND MAIN SIZES.

Framework.—The method of construction with 2 in. square framing is clearly shown in Fig. 2. The two end frames may be made as in either Figs. 3 or 4. In Fig. 3 there are two uprights joined with top and bottom rails half-lapped and screwed together. In Fig. 4 the uprights are simply joined with a top rail, and are long enough to be sunk about 1 ft. in the ground. When the end frames are made and are in place, the construction is carried forward by fixing two rafters across the top. They should be lapped about ¼ in. over the end frames, as shown in Fig. 5, and nailed. The framework is strengthened by fitting a centre upright under the back rafter, and nailing a fascia board from 4 ins. to 6 ins. deep across the front top edge of the framework.

The front is enclosed rather more than half-way up with ¾ in. or 1 in. boarding nailed to the front uprights of the end frames, and above this a hinged flap is fitted. This flap is made with boards similar to those used to cover in the lower portion, battens being nailed on to hold them together. The flap is hinged to the lower boarding; when up in place it fits under the fascia board, and is secured with a turn-button or other suitable fitting. The door at the end should be battened and braced, as shown in Fig. 6. The roof could be boarded and covered with felt, or covered with galvanised iron, the joints against the walls being weathered with sand and cement.

Stand.—If the shed is to be used for a cycle, a stand should be fitted to the end opposite the door as in Fig. 2, and the enlarged details in Figs. 7 and 8. A 2 in. square rail is carried across between the uprights of the end frame at the height shown in Fig. 7. Two guide boards 2 ft. long by at least 4 ins.

(Continued on page 182)

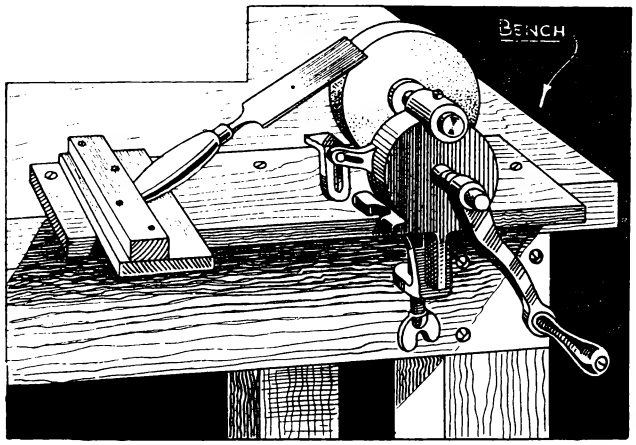


FIG. 1. TOOL FENCE USED IN GRINDING.
The tool is slid sideways back and forth so that every part of the bevel is ground equally. This device renders assistance unnecessary.

HOLLOW-GROUND CUTTING EDGES

Although professionally ground cutters are treated on a wet grindstone so that there is no risk of overheating, there is a growing tendency for men to use a geared emery or carborundum grindstone in the workshop. This is quite satisfactory if the tool is frequently dipped into water to keep it cool. The writer of this article considers that the hollow grinding which results from using the small diameter bench grindstone has advantages over the flat bevel more usual in tools.

WHEN grinding the cutting edges of tools on a geared (bench) grindstone, most woodworkers use the tool-rest as the sole means of support. Such a procedure is inadvisable, particularly as regards the cutting irons of smoothing planes, try-planes, jack-planes, etc. A neat, straight, flat bevel is obtainable, of course, but one generally needs an assistant to turn the handle so that both hands are free to hold the edge of the tool against the stone properly. Moreover, the grinding is slow, great care being needed to get the bevel straight; the time required is longer if one works unaided.

Another point in respect of grinding is: why aim at a *flat* bevel? Obviously, a *hollow* bevel is more desirable, for it means less rubbing when sharpening the cutting edge on an oilstone. Firmer and mortise chisels are vastly improved by the slight hollowness in the bevels; it is a real treat to chop out dovetails, mortises, etc., with them.

A Tool Fence.—To facilitate grinding, i.e. to operate the grindstone unaided and obtain a neat, straight, hollow-ground bevel a tool fence should be made, the whole arrangement being illustrated in Fig. 1. To make the fence, a piece of $\frac{7}{8}$ in. flooring 18 ins. long by $4\frac{3}{4}$ ins. wide provides the base. A small fence, rather like a bench-hook, is arranged at one end as in Fig. 2. It is a permanent fixture, for the grindstone itself is adjustable along the front edge of the base.

Now, the usual diameter of bench grindstone wheels is from 6 ins. to 4 ins. Naturally, the small wheel gives a more acute concave bevel, but by holding the tool at a more acute slant a quite good hollow-ground bevel can be obtained on larger wheels.

A Smoothing Plane Cutter.—A 7 in. long smoothing plane cutter is shown in the side elevation in Fig. 2, and the amount of tilt can be noted. For tools of greater length, such as mortise chisels, the grindstone is shifted farther away, as in Fig. 3.

Assuming, however, you wish to grind a smoothing plane cutter, screw—or clamp—the fence to the bench top, set the cutter against the guide of the fence, and bring the grindstone over until the correct slant is found. The circumference edge of the emery wheel must, of course, be true in relation with the fence so the entire surface bites into the metal with each revolution.

Hold the cutting iron against the wheel firmly with the left hand and operate the grindstone with the other hand, turning

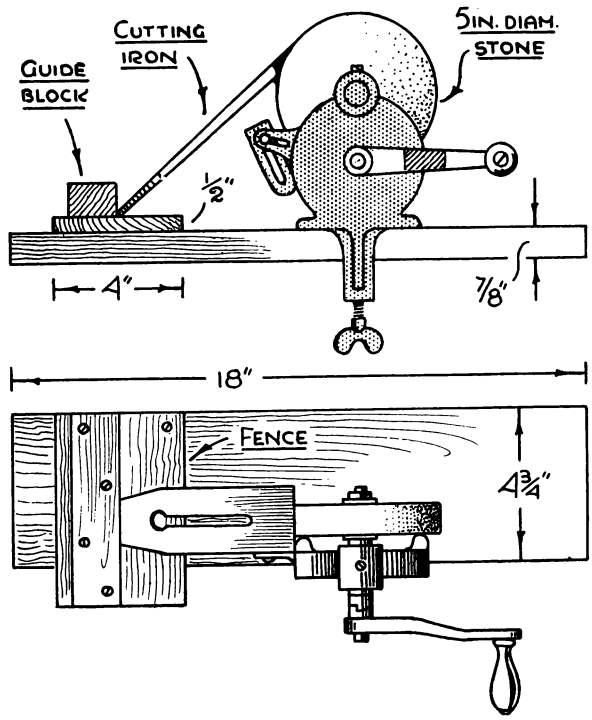


FIG. 2. ELEVATION AND PLAN SHOWING GRINDING OF A PLANE IRON.

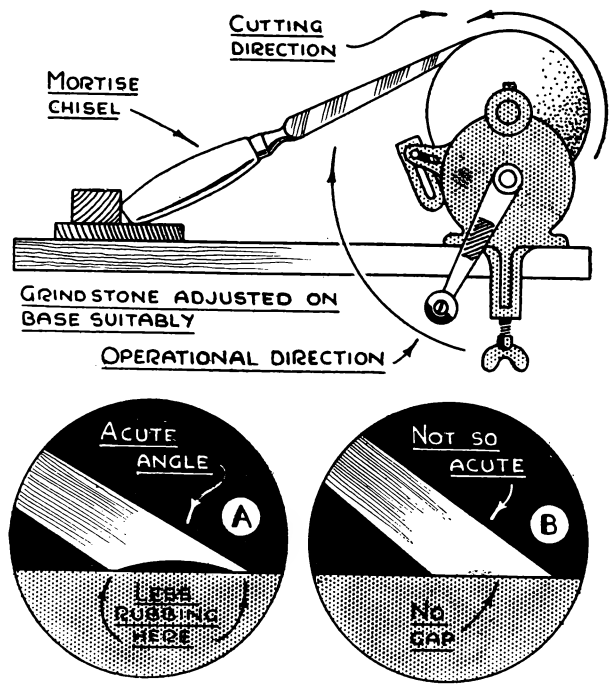


FIG. 3. MORTISE CHISEL BEING GROUND.
There is less rubbing required on the oilstone when the bevel is hollow ground as shown at A.

the handle slowly at first until you get into the rhythm of the action. The iron, once you get going properly, is slowly moved from side to side across the revolving stone by sliding its opposite end along the fence.

Should this end be rather battered about with sharp, hammered edges (due to setting in the plane) this roughness should be ground off to make the end smooth and straight; otherwise the end may stick in the corner formed by the guide block and make the movement difficult.

Avoid Over-Heating.—Geared grinders have a ratio of about 7 to 1. In other words, one turn of the handle causes the emery wheel to revolve seven times. Therefore, as the grinding is constant, there is a risk of over-heating the iron.

One must not turn the handle too quickly, or alternatively, lean too heavily on the cutting iron. Keep a tin of cold water handy so the iron can be cooled in it frequently. An over-heated cutting edge turns a bluish-black colour. The ultimate result is a softening of the temper at the edge where, of course, there is not so much metal, and a softened edge renders the iron useless.

Hollow Grinding Features.—The difference between a hollow-ground bevel and a flat bevel are shown at A and B, Fig. 3. When rubbing on the oilstone there is much less metal to be removed in the sharpening of the hollow-ground cutter and consequently less labour is involved. The drawing of a hollow-ground smoothing plane iron at Fig. 4 shows up the advantages of the feature. Regarding chisels, such a bevel enables the cutting edge to slice its way deeply into the wood. (393)

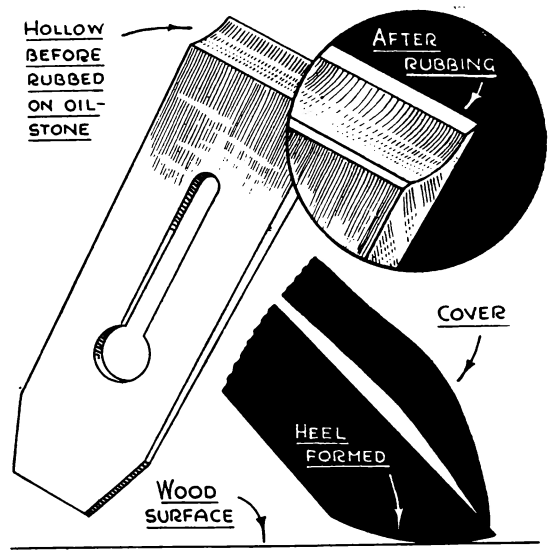


FIG. 4. HOLLOW-GROUND PLANE IRON.
The result of dubbing over the edge when sharpening on the oilstone is shown below. Note the heel formed.

WORKING ALLOWANCES FOR TIMBER

ALTHOUGH there are generally accepted allowances which apply to most cutting lists, they do to an extent depend upon your skill as a woodworker. A capable man can do with less allowance than one who is liable to saw crookedly and who requires to take off a lot of shavings before he is sure of making an edge true. It always pays to cut allowances to a minimum, partly because this necessarily effects an economy in material, and also because it means that there is less work to do. If you allow $\frac{1}{8}$ in. on a piece of wood unnecessarily you have only to remove it subsequently.

Length.—First consider length. To an extent this is governed by the width because if a wide board is sawn only the slightest degree out of square its length will be appreciably curtailed when it is planed square. A narrow strip on the other hand would have to be sawn very badly out of truth for its length to be seriously affected by later squaring.

Another consideration is the purpose for which the wood is required. If it will eventually have to be merely trimmed and nothing more, a safe trimming allowance is all that you need. For instance a top or an end comes under this heading, and trimming allowance (controlled by the width) is all you need make. Naturally, in the case of a very wide top requiring possibly several joints extra allowance is desirable.

On the other hand, consider a door stile which has to be mortised near the ends. We all know from experience that to chop a mortise very close to the end is liable to cause splitting. It is therefore desirable to make very full allowance for such parts, the waste being sawn away after assembling.

Going to the other extreme take the rails for the same door. These are to be tenoned at both ends and no trimming allowance of any kind is needed. They should be cut out to the exact length straightway. There is indeed a real disadvantage in cutting them unnecessarily long. Not only will the ends eventually have to be cut off, but you will be sawing an unnecessary length of tenon, and tenoning is not easy work at best.

Naturally this subject enters largely into the preparation of cutting lists, but it also figures in everyday jobs in the workshop, and in these days of timber economy it is obviously an important subject.

The following is a general guide. For general work allow from $\frac{1}{8}$ in. to $\frac{1}{2}$ in., the former for small work and the latter for big work. The allowance is affected, however, by the width as already stated. For work to be mortised at the ends allow at least 1 in. over finished size.

Width.—This is mostly affected by the size of the work. A large job requires more allowance than a small one. You have also to consider whether any jointing such as grooving may call for more working. Then there is the accuracy of your sawing. If you can be sure that this will be straight and square you need extra width only to ensure there being enough to enable both edges to be planed and parallel. Rough sawing, however, makes considerably greater allowance essential.

One point to be remembered when sawing out long narrow pieces such as door stiles is that they may tend to spring out of truth somewhat owing to the release of internal stresses. It is advisable therefore to allow rather more than usual for such work. Speaking generally the allowance might be from $\frac{1}{8}$ in. up to $\frac{1}{4}$ in. in accordance with the general size. More is desirable for extra wide work.

Thickness.—As most timber nowadays is obtained ready planed you can generally reckon on the finished size. If you buy sawn timber, however, reckon for large work on having to reduce it by at least $\frac{1}{8}$ in. in planing. For smaller work $\frac{1}{16}$ in. is enough unless the sawing is very faulty. (391)

Your bench vice should be in alignment with the edge of the bench. Otherwise a long piece of wood may be distorted when fixed in the vice. Thus when planing the edge the wood may spring when released with the result that it is not true though it may have appeared so when tested in the vice.

* * *

Do not leave blobs of dried glue on your bench top. They will cause any piece of work laid thereon to become bruised, especially if any planing is done.

* * *

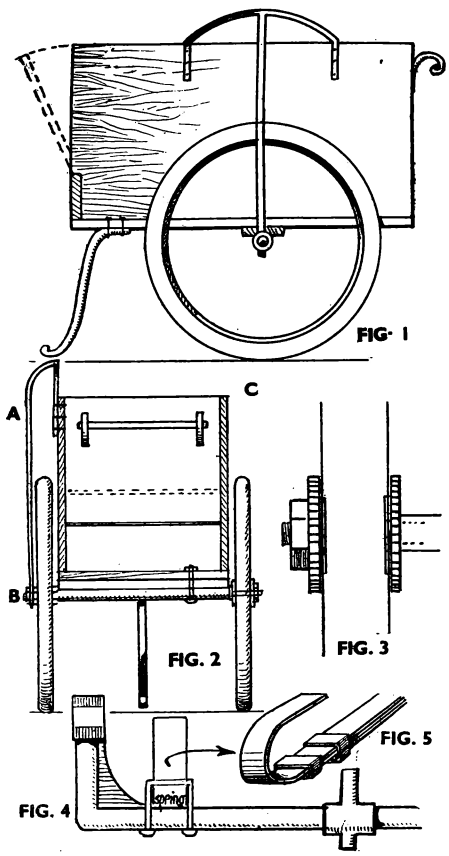
Make sure that your bench vice is square with the bench top If it is not, any wood fixed in it will lean over at an angle, and in such operations as boring the hole will be out of truth though the brace is held upright.

• • • THE QUESTION BOX • • •

MILK CARRIER **E.A.C. (Whitland) asks advice on making a milk carrier for delivery.**

Reply.—Being intended for limited service $\frac{7}{8}$ in. birch or pine should be satisfactory for the body. Over-all dimensions might be 30 in. to 33 ins. long by 20 ins. wide, height being 18 ins. —made up with 2 in. by $\frac{3}{4}$ in. lengths of batten in the inner angles and a stout bottom well-screwed up. At the forward end the front, hinged to a good rail, is made to fall, as shown by the dotted line in Fig. 1, to facilitate loading. At back metal brackets with a hardwood rail will provide the necessary handhold. The dotted line midway of Fig. 2 indicates a metal cradle to take the upper row of bottles. Your proposal to mount upon 25 in. by $1\frac{5}{8}$ in. cycle carrier wheels should serve, but we think that the employment of hoop iron to render the wheels more secure will not prove successful. You might, however, get the result required if a "D" section tube such as that used for the front forks of a bicycle are substituted. The vertical length in Fig. 1 is flanged and holed at the lower end for the spindle to pass and be tightened with washer and nut "B", the upper end "A" being welded to the bridge itself screwed or bolted to the box sides.

For the axle you might use a length of $1\frac{1}{8}$ in. gas barrel into which the spindles could be welded and the wheels adjusted with milled washers both sides and finally nutted. If the washers are tapped also you will get the holding of a lock-nut on the outsides, Fig. 3. A length of 2 by $\frac{3}{4}$ in. batten should be provided under the bottom of the body, and the length of barrel holed at a suitable distance from each wheel for bolts to pass as in C, Fig. 2. Your best result would, of course, be obtained by the use of an axle of the type Fig. 4 (one half shown), the spindles being fitted to the upturned extremities—which are braced in the angles—and the carrier-body mounted upon a pair of cradle springs similarly to Fig. 5 and bolted in position to the axle. The iron leg should finish a trifle clear of the ground, so that it does not drag. It requires securely bolting to the bottom. The exact position of fitting the wheels should have some relation to your method of loading. If the body is made longer than the suggested dimensions the position of the leg is also at your discretion. (363)



CONSTRUCTION OF MILK CARRIER

In these columns we endeavour to help readers in practical difficulties.

REGULATIONS

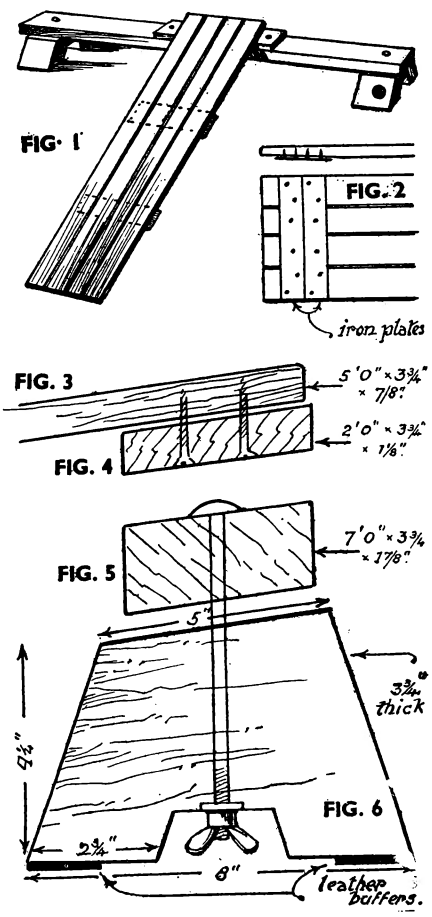
Each query must be accompanied by a stamped addressed envelope.
A coupon from page iv. of cover must be enclosed.
Full particulars must be stated, and, if possible, a rough sketch sent.
Only problems connected with woodwork can be dealt with.
Special designs for individual requirements cannot be prepared.

Queries should be addressed to: The Editor, WOODWORKER, Montague House, Russell Square, London, W.C.1.

GYMNASIUM SPRINGBOARD **J.A.G. asks advice regarding the construction of a spring board for use in a gymnasium.**

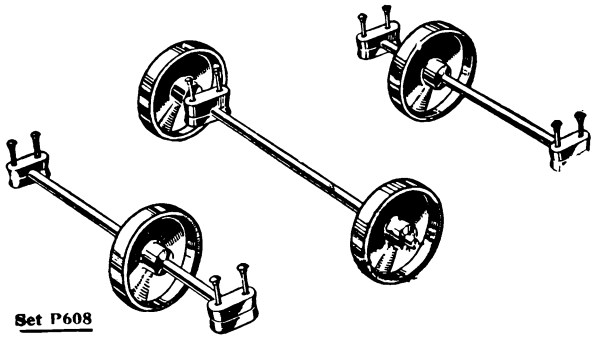
Reply.—The details given here should assist you. The actual springboard is 5 ft. long by 17 ins. wide, and is made up of four lengths of $\frac{7}{8}$ in. thickness. Each board finishes $3\frac{3}{4}$ ins. wide, spaced to the stated width, and held by two battens $3\frac{7}{8}$ ins. by $\frac{7}{8}$ in., as in Fig. 1 per dotted line. At the floor edges the boards are bevelled and mounted with two $1\frac{1}{2}$ ins. by $\frac{1}{8}$ in. iron plates firmly screwed as shown in Fig. 2 on underside. At the upper end the boards are mounted upon a $3\frac{3}{4}$ ins. by $1\frac{1}{8}$ ins. batten to finish 2 ft. long (Figs. 3 and 4). Both boards and battens are of pitch pine, and the 2 ft. length will be held to the platform by round-headed bolts and nuts at its extremities. The platform itself is of oak throughout and consists of a 7 ft. length of timber to finish $3\frac{3}{4}$ ins. by $1\frac{7}{8}$ ins. with its upper edges eased to roundness. This is mounted upon two shaped blocks $3\frac{3}{4}$ in. thick. The upper edge is cut to a cant which will give the required pitch of the board. Front and back edges are splayed so that it finishes 5 ins. wide above and 8 ins. wide at ground where it is cut up in centre, as shown in Fig. 6, to afford clearance for the round-headed bolt and fly-nut. Suitable grip to the floor is obtained by means of two strips of leather nailed on to form buffers and reduce noise in course of use. (333)

Note for Overseas Readers.—The fact that goods made of raw materials in short supply owing to war conditions are advertised in this magazine should not be taken as an indication that they are necessarily available for export.



GYMNASIUM SPRINGBOARD DETAILS

COMPLETE SETS OR SEPARATE PARTS FOR TROLLEYS, TRUCKS, BARROWS, ETC.



Set P608

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WHEELS ANY SIZE TO ORDER.
ASK FOR IRON WHEELS LIST PLAIN OR RUBBER TYRED.

COMPLETE SET OF HAND-TRUCK UNDERWORKS
"The Little Wonder" Set Truckwork Complete, ready to fix, no trouble at all. Set No. O—Wood wheels up to 30 in. diam. Steel Tyres, Axle, Springs, Scrolls, etc. Carry 1½ cwt. **£4-19-6**

Also other Complete Sets with Rubber-Tyred Wheels.
No special knowledge required for fitting.
Also Wood Wheels up to 12 cwt. load.
Ask for Truck and Wheel List.

We are noted for Castors of all kinds, Trolley Wheels, etc., Iron Steel and Rubber. Wheels in Brass, Iron, Steel. Ask for Castor list.

Supplies are mostly restricted by Government. All prices subject to variation without notice. Close early Saturdays.

Send 2d. stamp for LISTS to Dept. "W." *Tel.* RODNEY 3011

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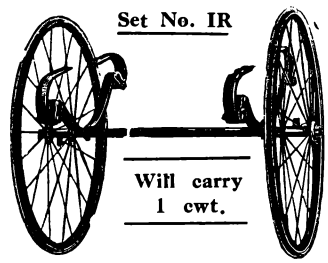

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Will carry 1 cwt.

Stout Wheels, Thick Spokes Rubber Tyres, wired on. Best Steel Springs, Scrolls, etc. Strong ¾in. Axle. Any length to order, or send clear width of gateway.

9 Sizes of Wheels. 5 Sizes of Rubber. Wheels and Axle sold separately.
Also made for 4 cwt. load.
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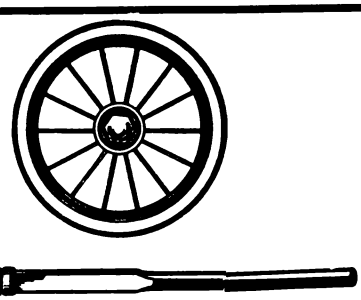

Our Grand Extra Strong RUBBER-TYRED WHEEL 4R
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4 Sizes of Rubber, loads 3-4 cwt.
No. 4R Axles any length to order.
Always ask for S.L.W.W. No. 4R Wheels.
Plain or Ball-Bearings.
Complete sets supplied for making Hand Trucks.
With Wheels, Axles, Caps, Springs, Scrolls, Clips. Ready to fix. Also supplied in many sizes to carry 1 cwt. load.

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No Toy Wheels Available at Present.

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For a quick repair to Boilers, Pipes, Cooking Utensils, Radiators and Metal Work in workshop and home. Simple to use. No heat required. The cement is in powder form and for use it is only necessary to mix with cold water as explained in the directions. *PRICE 1/- TIN*
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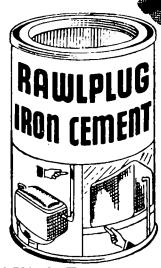

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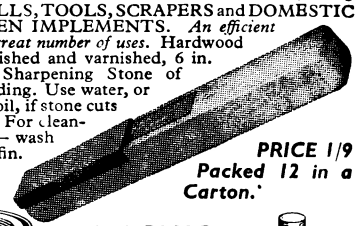

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For Home, Workshop, Garage or Garden. An all-purpose oil that Lubricates, Penetrates, Polishes, Cleans, Eases, Prevents and removes Rust. Price 1/3 per bottle. Packed in 2 doz. units.

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A tool for better Service and Longer Life. The Rawlplug Super Scraper is one of the most efficient and economical Scrapers on the Market. It not only simplifies work and gives a smooth finish but does away with scratching, which is a common disadvantage when sandpapering or using inferior Scrapers. The handle is shaped so as to afford good grip. Handle and Blade carrier are made in one piece of seasoned hardwood, polished and varnished—total length about 6 in.

PRICE 3/-
PACKED 3 ON A CARD

PACKED IN BOXES
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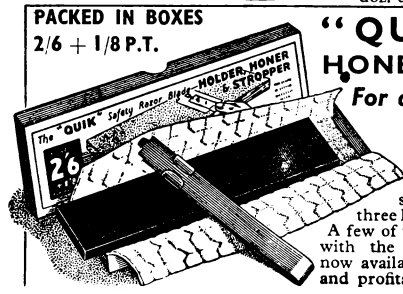

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